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NEW PERSPECTIVES IN CULTURAL RESOURCE MANAGEMENT

Edited by
Francis P. McManamon

New Perspectives in Cultural Resource Management

New Perspectives in Cultural Resource Management describes the historic developments, current challenges, and future opportunities presented by contemporary Cultural Resource Management (CRM). CRM is a substantial aspect of archaeology, history, historical architecture, historical preservation, and public policy in the United States and other countries. Chapter authors are innovators and leaders in the development and contemporary practice of CRM. Collectively they have conducted thousands of investigations and managed programs at local, state, tribal, and national levels. The chapters provide perspectives on the methods, policies, and procedures of historical and contemporary CRM. Recommendations are provided on current and new practices that will be necessary in the coming decades.

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In 1967 historian **Jerry L. Rogers** became the second person employed full-time in implementing the brand new National Historic Preservation Act. By 2001, when he retired from the National Park Service (NPS), he had served as Keeper of the National Register of Historic Places, Associate Director for Cultural Resources, and Deputy Regional Director for the NPS Southwest Region. He is active in natural and cultural resource fields and is a site steward for The Archaeological Conservancy at San Marcos Pueblo.

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Forty years of Cultural Resource Management

Introducing *New Perspectives in Cultural Resource Management*

Francis P. McManamon

Cultural Resource Management (CRM) in the United States is in its fifth decade. Since its birth in the early 1970s, CRM activities have become important parts of the disciplines of archaeology, architecture, architectural history, cultural anthropology, curation, history, historical architecture, and museum management. The "cultural resources" referred to here include: archaeological sites, collections, and records; historical places, sites, and structures; architecturally important houses, buildings, and other structures; museum objects; and traditional cultural places or properties. Within the CRM framework, depending on the resources, context, and the situation, these resources may be important or significant at the international, national, regional, state, tribal, or local levels. Furthermore, CRM encompasses a wide range of activities from investigations to discover or inventory resources, to evaluating their importance or significance, to documenting resources using appropriate cultural, historical, or scientific methods and techniques, to developing and applying various treatments for cultural resources.

Most of the chapters in this book began as presentations in a symposium, "40 Years of CRM (1974–2014): Accomplishments, Challenges, and Needs," held at the 2014 Annual Meeting of the Society for American Archaeology in Austin, Texas. The chapter list is enriched by Robinson's chapter on state-based CRM programs, which was not part of the original symposium. I am particularly indebted to Paul for filling in this important gap in the coverage of the present state of CRM. The 40th anniversary of the events of 1974 that were fundamental in the development of CRM in the United States provided a commemorative stage upon which to review the historic developments, current challenges, and future opportunities of CRM. This book uses the historical and professional perspectives of the authors regarding the development and current state of CRM to identify effective methods and productive means to meet the challenges that confront the preservation, protection, and appropriate uses of archaeological and other cultural resources in the twenty-first century. The aim here is to consider the methods, policies, and procedures that have developed in CRM since its inception and draw upon experiences with these matters to

identify what among current practice is likely to be effective in the coming decades and what needs to be changed. New challenges resulting from the unexpected results of the recent national election in the United States make it even more important for a strong affirmation of the value of CRM and focus on improving it.

The perspectives offered in this book focus most directly, but not exclusively, on archaeological aspects of CRM and its United States context. However, readers will find discussions of topics that cross-cut the range of CRM activities, disciplines, and resource types and apply in other parts of the world as well. There are, for example, throughout the book's chapters considerations of broad topics, such as: the significance and value of cultural resources (Chapters 2, 3, 4, 6, 7, 8, 10, 11, 12, 14, 15, and 16); professional ethics (Chapters 4, 7, 8, and 9); indigenous or tribal and other community perspectives (Chapters 4, 7, 8, 14, 15, and 16); and, business, economics, and public policy (Chapters 1, 2, 5, 6, 9, 13, 14, 15, and 16).

After 40 years of activities, one might well ask how *new* perspectives could exist. However, as Chapter 1 illustrates, from its early years, the ideas and means by which cultural resources are managed have changed regularly, influenced by shifting social norms, politics, law, regulations, and policies. The CRM sector of archaeology has come to be the largest sector of the discipline, employing more archaeologists and involving more field investigations than the academic or museum sectors. Since its inception, CRM has influenced interpretive frameworks, method, technique, and theory in a range of other disciplines, as well.

In this collection of essays, experts review from their personal and professional perspectives CRM's historic developments, current challenges, and future opportunities. Chapters are authored by leaders in the development and contemporary practice of CRM. The authors, each with decades of experience, represent the first generations of professionals who developed and applied the administrative framework, methods, and techniques of CRM in the United States. The authors have administered, conducted, or directed thousands of investigations and managed private and public CRM organizations and programs at local, state, tribal, and national levels. The essays describe a variety of perspectives, interpretations, and opinions about the development of CRM and its future.

The contributed chapters are organized to describe and assess systematically contemporary CRM. Part I is an introductory section focusing on historical perspectives of CRM and its development. The section begins with a long essay describing and evaluating CRM's natal and adolescent periods. In Chapter 2, Jerry Rogers describes, from a first-person perspective, how the national listing of cultural resources in the United States, the National Register of Historic Places developed from an "honor roll" of historic properties to a key part of CRM and the public planning process. Rogers, continues to be active in historic preservation issues locally and nationally following a distinguished career leading CRM efforts in the U.S.

National Park Service. In this essay, he notes that some properties really do have important and widely recognized historical significance. He sagely advises that such values not be ignored by CRM professionals who may be focused on important, but more diffuse, general, or specialized public planning goals.

The authors of the next two chapters, Bill Lipe and Don Fowler, respectively, bring to bear long and significant involvement in CRM. At the beginning of their careers, both played key roles in the Glen Canyon Project, part of the Upper Colorado River Basin Archaeological Program, which Lipe summarizes in the first part of his essay. Each of them was involved in the initial development of CRM and maintained professional and scholarly involvement in it throughout their careers. Lipe summarizes the changes he observed, first-hand, as well as in perspective, in how CRM influenced the conduct of archaeological investigations and was itself influenced by cultural and political developments outside the field. Fowler describes historical changes in professional ethical standards and how issues raised by CRM influenced their development, in which he played important roles.

The second part presents five chapters that describe and evaluate CRM programs from the federal, state, tribal, and private sector perspectives. Examples are drawn related to contemporary development projects, resource management issues, and resource stewardship concerns. Owen Lindauer has spent most of his career working on "transportation archaeology" as a consultant, in a state transportation agency, and as an expert advisor and official at the national transportation level. Drawing on this experience, he describes "the good, the bad, and the ugly" of such development projects and programs. He draws upon his four-decade perspective to suggest the contributions to science and history from development-related studies, but also how such programs need improvement in efficiency and producing meaningful research results.

Sarah Schlanger and Signa Larralde describe the development of a professional CRM program in the Bureau of Land Management (BLM) and the changes in how cultural resources have been managed by BLM during the 40 years since the program got underway. BLM officials are responsible for managing the largest amount of public lands in the United States, about 250 million acres. They discuss how the CRM staff works to ensure appropriate preservation and use of cultural resources within an agency that is responsible for overseeing a "multiple-use mission" regarding the resources that it manages for the overall public good. Paul Robinson shifts the focus to CRM programs at the state level and to the east of some of the earlier essays. Robinson served for two decades as State Archaeologist and on the staff of the State Historic Preservation Office (SHPO) in Rhode Island. In the United States, SHPOs play a key role in CRM as historic property resource inventory keepers; public development project reviewers; reviewers of CRM investigation results; in the determination of cultural resource significance and undertaking impact determinations; and, other

matters. Robinson focuses on examples of how state programs partner with descendent and local communities and other agencies to find good solutions for the stewardship of cultural resources. He draws on examples from Connecticut, Georgia, Iowa, Massachusetts, New York, and Tennessee, as well as several closer to home in Rhode Island to illustrate his points. In their essay about the Zuni CRM program, Cindy and Kurt Dongoske and T. J. Ferguson bring to bear on the topic a combined 85 years of experience working for and with the Pueblo of Zuni and other Native American tribes. In this essay they describe the challenges of integrating Zuni cultural values with the Euroamerican perspective inherent in the procedures and values of the United States CRM and historic preservation systems. The Zuni face the double challenges of protecting and preserving cultural resources that are important to the tribe both within the reservation and outside its boundaries. To do so effectively, the Zuni CRM program frequently must overcome administrative, financial, political, procedural, and staffing problems. The authors describe successes, but also acknowledge less than fully successful outcomes experienced by the tribe.

Teresita Majewski presents a "snapshot" of the current CRM industry in the United States, which is substantially in the private sector, and explores with specific examples how the individuals and businesses that make up the industry address professional issues of the subject matter of CRM. She shows how the focus on maintaining high professional standards presents challenges for starting, developing, and maintaining firms and business operations. Majewski examines how the American Cultural Resources Association (ACRA), the CRM industry's trade association, in which she has played a leading role as President and in other key offices, assists its members and other CRM firms in dealing with business and professional challenges.

Part III contains essays describing and evaluating key issues of contemporary CRM. The topics of these chapters cover data collection and resource description standards for CRM projects; using CRM data in unique ways, for example, in "Big Data" research; ensuring adequate curation of physical collections and digital data created by CRM programs; CRM business concerns and needs; and, using CRM data and projects to build community-supported resource preservation that is effective and long-term.

The authors of the essays in this section further illustrate the different kinds of organizations involved in CRM activities. Heidi Roberts, Chris Dore, and Bill Doelle are founders or senior officers in CRM businesses whose activities span broad parts of the country, and extend internationally. David Anderson, now a distinguished professor at a major university, earlier spent decades as an archaeologist with a federal agency, the National Park Service. Michael Trimble, Andrea Farmer, and Linda Mayro provide their CRM expertise as current public agency employees, Trimble and Farmer with the U.S. Army Corps of Engineers and Mayro as the director of conservation and sustainability for one of the largest counties in Arizona.

Summarizing some of the products and experiences of her career in a variety of CRM roles, Heidi Roberts notes procedural and regulatory challenges that professionals working in CRM encounter. She warns of "lock step" compliance with procedures in situations that call for a different approach. Her examples involve the recording, evaluation, and significance determinations of relatively recent material culture found scattered on contemporary landscapes and how to select site discovery methods and techniques when investigating areas where what is visible on the current surface is not necessarily an accurate indicator of what might be below the surface. David Anderson looks at CRM data as a vast quantity of information susceptible to research on a variety of important topics. Anderson has been a leader in creating and investigating large datasets, such as the Paleoindian Database of the Americas (PIDBA) and, more recently, the Digital Index of North American Archaeology (DINAA). He notes and provides examples of progressively larger scales of analysis being used in archaeological investigations, much of the data having been collected and described as part of CRM investigations. As Anderson concludes, the growing corpus of data from CRM presents opportunities for research to better understand the long-term human-environment relationships and other topics of direct interest and use now as people around the globe determine how to cope with contemporary environmental changes.

Chris Dore brings his M.B.A. to bear on private sector CRM. From a business perspective, he summarizes how the CRM industry has changed over the last 40 years and describes its current characteristics. Dore examines business challenges he sees for CRM firms regarding differentiation and capitalization. He concludes that the general business model of most CRM firms needs to be revised due to the maturation of the market for these services and comments that a much more formal approach is needed for CRM firms to thrive as contemporary businesses. The U.S. Army Corps of Engineers' Center for Expertise for the Curation and Management of Archaeological Collections in St. Louis has been a leader in collections curation and data management. Michael "Sonny" Trimble is the founder and director of the Center and Andrea Farmer is its Chief Curator. Trimble and Farmer review the historical background, noting the relative neglect, of archaeological collections curation through much of the twentieth century. They summarize several approaches to caring for archaeological collections, then describe how the Corps of Engineers approach to curation has developed in recent decades. They note the importance of regionalization of curation centers in order to take advantage of economies of scale for this essential activity. They highlight an innovation pioneered by their center, the Veterans Curation Program, which aligns support of military veterans with improving the condition, curation, and availability of data and information about archaeological Corps of Engineers collections. In their essay, Linda Mayro and Bill Doelle first reflect on mid-twentieth century America and the rush of highway, urban development, large water control projects, and other

developments that followed the end of the World War II. CRM developed out of the concern about damage and destruction of archaeological and other heritage resources from these developments. Mayro and Doelle shift gears at this point and describe from a local perspective how "preservation archaeology" has developed in Pima County, Arizona. This approach, which they played important roles in developing, brings together site protection, research, and public outreach in a community-based program that values cultural and heritage resources. They give examples of the importance of setting priorities for resource protection, community engagement, and using public planning processes, procedures, and ordinances in order to ensure cultural resource appreciation and preservation.

The last part of this collection includes two essays that emphasize many of the topics raised in the earlier chapters with a particular focus on addressing twenty-first-century challenges and opportunities for CRM. Lynne Sebastian, currently a consultant on CRM and historic preservation and member of the President's Advisory Council on Historic Preservation, brings her deep expertise and wide experience in the field to this task. She calls for the regulatory procedures that implement CRM to be used more creatively with greater willingness to make improvements that may be out of the ordinary, but yield better results. How do we determine what are "better" results? Sebastian's answer is to find ways of making more broadly available to the public compelling stories and interesting knowledge about the human past that can be derived from the mass of data produced by CRM investigations. Recognizing the challenges facing these kinds of endeavors, Sebastian comments that obstacles to achieving important results from opportunities in the early days of CRM also appeared daunting, but were overcome by determination, innovation, and grit. In her view, increasing the broadly recognizable public benefit from CRM is critical for success in its future. In their essay concluding the book, McManamon and Rogers focus on the importance of leadership in CRM and characteristics that have been important in making leadership successful. They note, as described in many of the essays, that CRM has grown organically over the decades, not from some initial master plan for a set of activities, procedures, and subject matter. McManamon and Rogers identify key topics for focus in twenty-first-century CRM: providing easy access to the data and information obtained from CRM investigations; finding the means of caring for data and materials collected as part of CRM studies; dealing effectively with a shrinking professional workforce; and, clear thinking and action concerning the conservation and preservation of cultural resources. In their view, CRM needs collaborative leaders who are able to focus, motivate, and organize groups of partners, finding common ground among diverse interests. This kind of leadership, not a "command and control" style, will be needed for twenty-first-century successes in CRM.

All of the essays in this collection were completed prior to the 2016 election in the United States. These most recent national election results

suddenly injected uncertainty and reduced predictability in government procedures and the overall political landscape. As much as possible, CRM proponents need to take advantage of the new political situation in the United States. For example, how can the CRM sector cooperate and make progress as part of the planning for infrastructure improvements and development, as proposed by the new federal administration?

Now it is even more important for strong affirmation of the values of cultural resources as cultural and social anchors for communities (see also Chapters 14 and 15, this volume). Likewise, it is important to affirm the benefits of professional CRM for effective stewardship and appropriate treatment of cultural resources. In spite of the recent political changes, in fact, because of them, this collection of essays on perspectives regarding CRM is all the more important. Over the last four decades, CRM has shown itself to be more than a flash in the pan; rather, it is a long game. The essays collected here review the historical development and current state of CRM in its various guises. They represent CRM practiced in public agencies, tribal programs, private consulting firms, academic programs, and not-for-profit foundations. The authors provide informed interpretations and opinions about the development of CRM, current issues, ongoing challenges, and future opportunities. The perspectives espoused in the essays provide useful individual and sets of ideas for CRM as a field of endeavor in the twenty-first century.

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Part I

Historical perspectives and overview

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1 The development of Cultural Resource Management in the United States

Francis P. McManamon

Introduction

Although it is not possible to link any single specific year with the initiation of Cultural Resource Management (CRM), 1974 certainly was a banner year for activities and events that were key to its development in the United States. At the beginning of the year, in the January 25th issue of the *Federal Register*, the Advisory Council on Historic Preservation (ACHP) published the "Procedures for the Protection of Historic and Cultural Properties." These procedures are designated formally as Title 36 (Parks, Forests, and Public Property), Chapter VIII (Advisory Council on Historic Preservation), Part 800 of the United States Code of Federal Regulations (36 CFR 800). They more commonly and frequently are referred to simply as the "Section 106 procedures," named after the section of the National Historic Preservation Act of 1966 (NHPA) that they implement. By whatever name, this set of regulations has had a substantial impact on how most CRM investigations are conducted in the United States for over 40 years (e.g., King 2004: 81–190).

In April, the 1974 Cultural Resource Management Conference was held in Denver (Lipe and Lindsay 1974). Between July and November of 1974, the Airlie House Seminars on the management of archaeological resources were held at the Airlie House conference center in northern Virginia outside Washington, D.C. (McGimsey and Davis 1977). Presentations and discussions at these meetings focused on how to interpret new laws, regulations, and other governmental directives affecting archaeological resources and the anticipated changes in the practice of archaeology that would be necessary to address appropriately these environmental and historic preservation requirements. At the meetings there were discussions about the need to develop approaches and methods that focused on the conservation of archaeological resources, as opposed to excavation.

The Denver conference and the Airlie House seminars attendees were individuals, in academic, public agency, and museum organizations involved in addressing the problems associated with preservation of archaeological

and other historic data and properties in the United States. Gathered at these meetings were archaeologists, resource managers, and other experts who began the practice of CRM and developed the initial concepts, methods, and procedures of the sub-discipline.

The fourth event was the publication of an influential article by Bill Lipe, "A Conservation Model for American Archaeology" in *The Kiva*. Lipe forcefully and to wide effect pointed out that the archaeological record is a "non-renewable" resource. He noted that while it is true that highway construction, mining activities, reservoir creation, looting, vandalism, and the forces of nature all are capable of destroying archaeological sites, archaeologists also exploit the resource. Archaeological fieldwork preserves data about and from the sites where it takes place, but in the process the *in situ* resources are destroyed. Lipe's main point was that archaeologists needed to work at conserving the *in situ* archaeological record, as well as, salvaging or rescuing archaeological data that was threatened by modern developments. Lipe advocated an approach to the archaeological record that would ". . . avoid our getting to last-ditch, emergency salvage situations" (Lipe 1974: 215). Along with Bob McGimsey's *Public Archaeology* (1972), Lipe's article is regarded widely as establishing a philosophical foundation for the conservation-oriented contemporary CRM policy.

One new law fills out this list of notable 1974 events. The Archaeological Recovery Act, known more commonly as the Archaeological and Historic Preservation Act of 1974 (AHPA), and within the archaeological community often referred to as the Moss-Bennett Act (named for the primary sponsors of the bills, Senator Frank Moss of Utah and the Representative Charles E. Bennett of Florida) was enacted. Formally, the new statute amended the Reservoir Salvage Act of 1960 and clearly broadened the obligations of federal agencies to take account of archaeological sites that their actions affected. In particular the amendment authorized the use of project funds for archaeological investigations required as part of agency projects.

The term "cultural resources management" developed within the discipline of archaeology in the United States during the early 1970s. Fowler (1982: 1) attributes the first use of the term "cultural resources" to specialists within the National Park Service (NPS) in 1971 or 1972. Shortly after this, the word "management" became linked with cultural resources, for example, in the title of the 1974 Cultural Resource Management Conference held in Denver (Lipe and Lindsay 1974) and in the Cultural Resource Management seminar that was part of the Airlie House workshops (McGimsey and Davis 1977). McGimsey (1991, 2004: 3–7) concludes that, while the term came into use during the early 1970s

> as a coherent, identified concept applicable to . . . archaeology, it crystallized in the minds of a few archaeologists at the Airlie House conference

> in 1974 and was given formal birth, or at least christened, with the publication of [the Airlie House] report.
>
> (McGimsey 2004: 3)

Before 1974

Although it was a new term and acronym in the early 1970s, cultural resource management evolved from concerns about the protection of archaeological sites that developed in the late nineteenth and early twentieth centuries. In the late nineteenth century archaeologists and others concerned with the preservation of archaeological artifacts and sites managed to get the federal government to take steps to preserve and protect a few sites from destruction and deterioration, for example, at Casa Grande ruins near Coolidge, Arizona (Clemensen 1992; Lee 2000). In 1906, advocates of archaeological preservation secured passage of the Antiquities Act, which was designed to protect archaeological sites on public lands and regulate how they were investigated (Lee 2000; Thompson 2000; McManamon 1996, 2006a). In the early twentieth century, the Department of the Interior, and after its creation in 1916 the National Park Service, attempted to preserve archaeological sites, but allocated few resources to these efforts and concerns persisted (Browning 2003: 4–11; Rothman 1989). In addition to the Antiquities Act, in 1935, the Historic Sites Act was enacted. This statute recognized the importance of historic sites that were of national importance and identified the NPS as having responsibilities for identifying and providing assistance to owners of such historic properties.

Knowledgeable and alert archaeologists working in the Washington, D.C. area at the end of the World War II learned of plans for a massive federal government public works program scheduled for development following the conclusion of the war. The planners envisioned an enormous civil engineering program of water control on the Missouri and other large rivers throughout the United States. This program would involve the construction of many dams, other facilities, and the creation of large reservoirs. The construction and impoundment of large bodies of water would substantially affect archaeological sites throughout the nation. The concerned individual archaeologists and related archaeological and scientific organizations took steps to have government agencies take archaeological resources into account as part of this large construction and development program (Brew 1947; Jennings 1985; Johnson 1947, 1951, 1961, 1966; Roberts 1948; Wendorf and Thompson 2002).

The term "emergency/salvage" is used in this chapter to refer to the archaeological investigations, programs, and results of this program. I do so because by the late 1970s the term "salvage archaeology" was held in low regard and derided by some archaeologists. I link the term "emergency" with salvage archaeology in deference to J. O. Brew, who used this term as

well (Brew 1961, 1968: 1) and to Jesse D. Jennings, who preferred this term (Jennings 1986: 59). Brew played key roles throughout his career in saving archaeological data from sites destroyed by modern developments. Jennings created and administered an exemplary emergency/salvage program in Utah (e.g., see Fowler 2011; Jennings 1963; Jennings and Sharrock 1965; Lipe 2012 and Chapter 3 in this volume) and wrote clearly and forcefully about both the benefits and the failings of emergency/salvage archaeology and CRM (Jennings 1985, 1986).

During the late 1940s and early 1950s, the River Basin Salvage program developed activities and procedures to include the NPS, Smithsonian Institution, U.S. Army Corps of Engineers (hereafter the Corps of Engineers), Bureau of Reclamation (BLM), national archaeological and scientific organizations, and many universities in various parts of the country. There are a number of publications describing the development of this program (Brew 1968; Corbett 1961; Committee for the Recovery of Archaeological Remains 1958; Johnson 1947, 1951, 1961, 1966; Kahler 1947; Wendorf and Thompson 2002) and a recent collection of articles describing its conduct and results (Banks and Czaplicki 2014). A series of reports of investigations were published by the Smithsonian through the Bureau of American Ethnology. Petsche (1968) compiled a book-length listing of the publications that were produced as a result of emergency/salvage archaeological investigations. Summary reports of the program also were published and at least one popularly written book (e.g., Roberts 1952, 1961; Baldwin 1966). During this period, the NPS developed the administrative framework, justifying its involvement with the mandate in the 1935 Historic Sites Act to undertake surveys of archaeological and historic sites and to provide technical assistance in archaeology and historic preservation.

The archaeological investigations done as part of the River Basin Salvage program typically were carried out through contracts or cooperative agreements administered by the National Park Service or Smithsonian Institution and conducted by universities or state museums. Most of this work was done just prior to or during the construction of reservoir projects, not as part of project planning. This "just ahead of the bulldozers" approach became one of the chief criticisms of emergency/salvage archaeology. At the beginning of the 1950s, however, the salvaging of data in the face of construction was imitated in the development of similar approaches integrating archaeological investigation with other kinds of modern development. Highway and pipeline emergency/salvage archaeology programs developed in some regions of the United States. Jesse Nusbaum, NPS archaeologist in Santa Fe and Departmental Consulting Archeologist, had a direct involvement in the development of pipeline salvage archaeology in the U.S. southwest (Nusbaum 1956). In New Mexico, Fred Wendorf (1962) established a highway archaeological emergency/salvage program with the state department of transportation.

One result of the heightened concern about environmental issues during the late 1960s and the 1970s was the enactment of laws to protect important aspects of the cultural and natural environment. Prominent among these laws were the NHPA and the National Environment Policy Act of 1969 (NEPA). Both of these statutes had important effects on the development of CRM in the United States. Both laws required that federal agencies and their state counterparts take cultural resources, defined broadly and including archaeological sites, into account as they planned, reviewed, or undertook projects or activities. Executive Order 11593, signed in 1971, required federal agencies to identify, evaluate, and protect cultural resources that their undertakings would affect and on land for which they had jurisdiction or control. This requirement subsequently was incorporated into the NHPA by amendment.

These changes in the 1960s and 1970s occurred during a time of cultural upheaval and social change in the United States. Challenges to authority, environmentalism, the civil rights movement, protests against government actions, including the Viet Nam War, occurred during these decades. Within the discipline of archaeology there was similar upheaval with younger scholars contesting traditional approaches. Arguments for an explicitly scientific approach in theory, method, and technique were growing (e.g., Binford 1962, 1964; Binford and Binford 1968; Fritz and Plog 1970; Leone 1972; Redman 1973; Watson, LeBlanc, and Redman 1971). Intellectually, the "New Archaeology" was having a substantial effect on how archaeological investigations and research were conceived, organized, and conducted.

CRM develops

CRM involves managing a range of cultural resource types in addition to archaeological resources. Archives, historic structures, cultural landscapes, ethnographic resources, museum collections, traditional cultural properties, and other kinds of cultural resources present similar challenges as those presented by archaeological resources in the areas of identification and evaluation, treatment, and long-term management (McGimsey and Davis 1974: 27; King, Hickman, and Berg 1977: 7–10; Knudson 1986). Although this chapter mainly describes developments in CRM based on archaeological resources, many of these developments also apply to CRM activities involving other kinds of cultural resources.

On regional and local fronts, in the late 1960s and early 1970s additional activities were underway and critiques of the emergency/salvage approach voiced. Based on his experience working on emergency/salvage projects in California, Tom King (1971) pointed out conflicts between the emergency/salvage approach and attempts to inject the scientific, "new archaeology" approach in archaeological investigations. King

recommended incorporating a problem orientation methodology and explicit theoretical aspects of research design into emergency/salvage projects. He also suggested archaeological coordination and planning for studies of areas rather than individual projects or sites. He describes as a potential example the North Coast Range area northwestern California (King 1971: 259–261).

There were earlier critiques and dissatisfaction expressed about the results of the emergency/salvage approach as well. Wendorf (1962: 77) describes some of the professional criticism as considering the approach to be "scattershot" and a broad, non-specific gathering of unrelated bits of archaeological data. Jennings (1963, 1985) notes criticism of the approach, which he turns on its head in a convincing justification and advocacy of emergency/salvage archaeology, as least as it was practiced in Utah under his direction. There were recurrent criticisms of the lack of dissemination of data, information, and interpretations from some emergency/salvage projects. For example, Lehmer (1965) was critical of low rates of dissemination of data and information from the Missouri River Basin program.

In the southwestern United States, a series of conferences, meetings, and workshops occurred in the early 1970s sponsored by the Arizona State Museum, Arizona State University, the NPS Arizona Archeology Center, and the Museum of Northern Arizona (Lindsay and Lipe 1974: viii–xi). The discussions at these meetings focused on two key aspects of the changing perspective and practice from emergency/salvage archaeology to CRM. Lindsay and Lipe (1974) describe how the new implementation of NEPA with its emphasis on environmental impact studies and planning, as well as Executive Order 11593, injected greater concern about resource conservation and management into considerations of how archaeological resources in development impact areas were treated. Eventually, this led to more emphasis on conserving archaeological resources and less on the excavation of sites to preserve data, followed by subsequent destruction of the sites as a consequence of modern development.

At this time, archaeologists, particular in the western states, working with federal land-managing agencies were encountering agency resource experts in wildlife, hydrology, geology, botany, and other disciplines. It seemed that agencies also should have professional expertise in archaeological and other cultural resources (Lipe 2012, personal communication). These experiences also colored the discussions during the 1974 CRM conference in Denver.

The 1974 Denver Federal Center CRM conference

The Denver CRM conference was a gathering of individuals who had key roles at the national, regional, state, and local levels in what was then the developing CRM approach. About 125 individuals from universities,

museums, state and federal agencies, Indian tribal governments, and public and private research institutes attended the conference on April 11th and 12th. The conference was hosted by the Bureau of Land Management in the Bureau of Reclamation auditorium at the Denver Federal Center. The program topics covered large questions of institutional responsibilities for conserving archaeological resources, how contracting for archaeological studies should be organized, what the standards should be for archaeological investigation, and how the anticipated increase in archaeological investigations required by new laws and regulations could be handled professionally.

In short order following the conference, Lipe and Lindsay collected and edited the presentations, formal comments, and transcripts of general discussion related to each topic into a proceedings volume, which was published five months after the conference ended (Lipe and Lindsay 1974). The publication provides a detailed picture of the topics and concerns of individuals involved in the early developments of CRM.

The conference proceedings, along with McGimsey's *Public Archaeology* (1972), was one of the few books on CRM at this early point in its development. Margaret Lyneis used both these as the central texts in two graduate courses on public archaeology that she taught at SUNY-Binghamton, among the first of professional training courses on this topic. As a second-year graduate student at SUNY-Binghamton in the spring and fall of 1975, Lyneis' class introduced me to the topic.

Among the participants in the Denver conference were many who went on to play important roles in the development of CRM. Table 1.1 is a compilation of the titles of presentations and their authors, as well as individuals who served as formal discussants and others who made comments during the discussion that followed each presentation (Lipe and Lindsay 1974). The conference also spawned the American Society for

Table 1.1 Topics, presentations, authors, commenters, and discussants, 1974 Denver CRM Conference

Paper Title and Author(s)	*Commenters and Discussants*
Introduction – Alexander J. Lindsay, Jr. and William D. Lipe	
History of Archaeological Conservation Policy and the Moss-Bennett Bill – Douglas H. Scovill	
Institutional Responsibilities in Conservation Archaeology – Raymond H. Thompson	Jesse D. Jennings, Charles R. McGimsey, III, Bob Butler, James Judge, William D. Lipe, Tom Layton

(*Continued*)

Table 1.1 (Continued)

Paper Title and Author(s)	*Commenters and Discussants*
Archaeological Contractual Agreements – James I. Carpenter	Jesse D. Jennings, Clayton Hagen, Jack Rudy, Douglas H. Scovill, Hester Davis, Cal Cummings, James Judge, Dave Madsen, Larry Banks, Donald S. Miller, Jerry Nash, Earl Swanson, Jim Hester
Gearing Up for Contract Archaeology – Douglas H. Scovill	Thomas F. King, S. Alan Skinner, William D. Lipe, Jim Hester, Stan Bussey, James Judge, Hester Davis, Bob Butler, Raymond H. Thompson, Dee Green, Dave Rice, Cal Cummings, Lloyd Pierson, Donald S. Miller, Dave Breternitz, Larry Banks, Charles R. McGimsey, III, Garland Gordon
Preparation of Archaeological Inputs to Environmental Reports and Environmental Impact Statement – Roberto Costales	Larry Aten, Louis S. Wall, William D. Lipe, Tom Layton, Garland Gordon, Jim Hester, Dee Green, Roberto Costales, Donald S. Miller, Hester Davis
Contract Standards for Archaeological Studies – Keith Anderson	Leslie E. Wildesen, David G. Rice, David Cole, Larry Aten, Hester Davis, Adrian Anderson, Floyd Sharrock, Bob Butler, Roberto Costales, William D. Lipe
Certification for Archaeologists and Amateurs – Donald S. Miller	Hester Davis, William Mayer-Oakes, Alexander J. Lindsay, Jr., William D. Lipe, Bob Euler, Alvin Briggs, Charles R. McGimsey, Jr., J.O. Brew, Mark Grady, Don Fowler
The Restructuring of a Profession – Charles R. McGimsey, III	R. Gwinn Vivian, James Judge, Larry Aten, William D. Lipe, Stan Bussey, Tom Layton, Jim Sears, Thomas F. King, Hester Davis, Bob Butler, Don Fowler
General Comments on the Conference – J. O. Brew	William D. Lipe and J. O. Brew

Source: From: *Proceedings of the 1974 Cultural Resource Management Conference, Federal Center, Denver, Colorado.* Museum of Northern Arizona Technical Series No. 14, 1974

Conservation Archaeology, a small organization that went on to focus attention during annual meetings and with a newsletter and annual proceedings volume on administrative, legal, methodological, policy, and regulatory issues concerning the conservation of archaeological resources (Mayer-Oakes 1974; see also Fowler, Chapter 4, this volume). Through

its activities, ASCA, which continued to operate into the 1980s, organized and shared information on issues important for the practice of CRM.

In their introduction to the proceedings, Lindsay and Lipe (1974: vii) contrast the new and developing perspective of "conserving" the archaeological record, which was the theme of the conference, with the "exploitative" manner of emergency/salvage archaeology. In his presentation at the conference, Ray Thompson, then the Director of the Arizona State Museum emphasized and elaborated on this contrast in perspectives.

> I draw a contrast between salvage and conservation archaeology solely for the purpose of emphasizing that conservation programs are not just overgrown salvage programs. I have no desire to denigrate salvage programs. In fact, I think that we can look back upon the salvage period in American archaeology with some justifiable pride . . . However, this laudable progress has been achieved largely at the expense of the resource base, that is, archaeological sites. I say this not because the archaeology done on salvage projects has been substandard, but because the decisions having to do with the use of the resource have not been made in most cases by archaeologists. Very often decisions are made that have a major impact on the archaeological resources without any consultation with the archaeologist.
>
> (Thompson 1974: 15–16)

Doug Scovill, then the newly appointed Chief Archeologist of the NPS, summarized the understanding of how new laws and regulations might allow greater emphasis on the conservation perspective. Scovill (1974a: 3) noted:

> . . . our task at this conference can be to begin to work out the specifics of how, at the operational level, we can achieve a rational balance between development to meet our industrial society's needs and conservation of historic resources so that our society and its future generations can reflect upon the past.

Scovill briefly reviewed the new legal and regulatory landscape. He noted that the ACHP's "Procedures for the Protection of Historic and Cultural Properties," published as a final regulation in January, 1974, took as it statutory authorities Section 106 of the NHPA, Executive Order 11593 (issued in 1971) and the NEPA. He correctly interpreted the ACHP Procedures as requiring a planning and review process that federal agencies and their state counterparts would have to follow. He further noted that this process would precede any necessary archaeological data recovery project

that might be authorized under the new Moss-Bennett law (Scovill 1974a: 4–8). A conservation approach was made possible by the early injection of a planning process to identify important archaeological resources that might be impacted by public projects. This step would provide time for consideration of whether any impact was appropriate before deciding that these resources would be destroyed, albeit having some of their data recovered systematically prior to that destruction. In 1974 the details of how these procedures would work, who would carry them out, and what the outcome(s) would be were not clear, but the way forward was discussed at the Denver conference.

Many of the recommendations that speakers and discussants made are remarkably prescient to any reader today. Scovill (1974a: 10–11) made several points:

- . . . the administration of the variety of laws and regulations is far more complex than it previously was. The archaeologist and bureaucrat alike must thoroughly digest and be able to apply this complex assortment of directives . . .
- . . . there will be considerably more jobs for archaeologists, not only in the federal government, but in state agencies and in academic institutions. And we can expect to see a proliferation of archaeological consulting firms or associations to meet the demand for services not provided by museums, academic institutions, or the federal government . . .
- . . . archaeologists should begin now to develop and implement a data management system, a system for the storage and curation of artifacts, a system for coordinating and evaluation proposed research, a system for evaluating the quality of work performed . . .

Although Scovill did not say so bluntly, an undercurrent of his comments suggested that the NPS might play a less central role in the newly developing approach to archaeology funded by federal agencies. The NPS Interagency Archeological Salvage Program had been instrumental in conducting or administering much of the emergency/salvage archaeological investigations from the late 1940s to the early 1970s. Lipe (2012, personal communication) recalled that

> . . . a subtext of the Denver Conference (not really reflected in the Table of Contents of the Proceedings) was that many federal agencies were in the process of hiring their own archaeologists and funding their own CRM programs, rather than contracting with the Park Service to manage this work. [I]n the 1970s there was a huge shift away from NPS management of CRM projects on behalf of other agencies to management by those agencies themselves. This was a big change. Interagency Archeological Services (IAS) became a diminishingly important player in the late 1970s and 1980s.

In his comments, Ray Thompson, like Scovill, emphasized the growing importance of sharing information. Speaking about institutional responsibilities as part of the new conservation approach, he said, among other things,

> . . . that institutions must accept a new sense of responsibility for completion of contract requirements including adequate reporting. The responsibility is corporate, not individual . . . the institution must . . . guarantee the production of a quality final report.
>
> (Thompson 1974: 20, see also the general discussion on this point on pp. 35–38)

Thompson expanded this concern beyond project reporting.

> We are purveyors of information, in our case information about archaeological resources. We cannot handle the increasing body of archaeological information unless we control it and understand it. An unavoidable institutional responsibility, therefore, is the development of information management systems that will enable archaeologists to make the judgments about archaeological significance of sites on a regional basis as required by federal regulations.
>
> (Thompson 1974: 20)

Understandably, there were only a few references to the NHPA, Section 106, and the National Register of Historic Places during the Denver conference. Not coincidentally, a few of these references are in the presentations by Tom King (1974) and Larry Aten (1974). At the time, Aten was working for the NPS in its Washington, D.C. office on the development of archaeological and historic preservation policies and programs based on the NHPA. A couple of years after the Denver conference, King also joined the NPS Washington staff and worked on the same issues, then for many years did the same at the ACHP. However, the centrality of the NHPA and regulations based on it for the legal and regulatory framework of CRM developed clearly only during the following years.

The participants in the Denver conference included archaeologists who were very familiar with the emergency/salvage approach. One was Jesse D. Jennings, who organized and conducted important archaeological projects in Utah as part of the emergency/salvage program and defended this approach against critics during and following its heyday (e.g., Jennings 1963, 1985; Jennings and Sharrock 1965). Jennings participated actively in the discussion during the conference, in particular on the subjects of professional training, institutional support, and publication of results. He made a formal comment on Ray Thompson's presentation about institutional responsibilities (Jennings 1974).

The other was J. O. Brew, the American archaeologist most often associated with development of the emergency/salvage approach, e.g., see Brew

1961, 1968; Brew et al. 1947). Brew was dedicated to the preservation of antiquities and worked on both a national and international level to preserve archaeological monuments and sites. Along with others, Brew was responsible for the formation and functioning of the Committee for the Recovery of Archaeological Remains (CRAR), which provided informal professional oversight of federal agency emergency/salvage programs from the 1950s to the 1970s (Wendorf and Thompson 2002). On the international level, Brew chaired the UNESCO Committee for Monuments, which was responsible for such important emergency/salvage projects as the preservation of archaeological sites threatened by the Aswan Dam in the Nile River.

It is noteworthy that Brew was invited to make "General Comments on the Conference." In his introduction of Brew, Bill Lipe spoke of his important achievements and career focus:

> I would like this time to recognize one man in particular who has played a formative role in this effort to save our archaeological heritage and who is continuing to work for archaeological conservation.

It is hard to imagine a more obvious "passing of the baton" between the emergency/salvage approach and the new conservation approach of CRM and Brew made fitting comments. He observed that the new approach had the benefit of convincing the development and land-managing federal agencies to provide funding for archaeological investigations, something that had been impossible, or at least difficult, in his experience. He concluded with a comment emphasizing continuity by noting that Bob McGimsey and Ray Thompson had joined the CRAR and that Thompson would soon succeed him as its chairman (Brew 1974).

The Airlie House archaeological resource management seminars

The Airlie House seminars were funded by the NPS based on a proposal developed by Charles R. McGimsey. He credits discussions with many colleagues in many places over the course of several years prior to 1974 as the sources of the ideas included in the proposal. McGimsey's idea for a series of focused professional meetings on important topics gelled in early 1973. After unfruitful meetings with a dozen or more public agencies and funding organizations, McGimsey finally found a sponsor in the NPS IAS program, which was interested in focusing professional interest on such crucial topics (McGimsey 1977: iii–iv).

Rex Wilson, at the time the Departmental Consulting Archeologist (DCA) for the Department of the Interior and in charge of the IAS, asked McGimsey to prepare the proposal for the seminars. Wilson obtained NPS funding and had a broad set of issues in mind for the seminars (McGimsey 1977: iv). The proposal upon which funding was based has the subtitle, "Six Seminars

on the Future Direction of Archeology" (McGimsey and Davis 1977: 1). The subject matter included topics that in various ways related to the management of archaeological resources. Most of the seminar topics had a clear relationship with the changes in how archaeologists regarded archaeological resources that were being discussed at the time. In particular the topics relate to the new conservation approach for the management and treatment of archaeological sites. Four of the six seminar topics: law and archaeology, CRM, guidelines for reports, and certification and accreditation are the same or similar to topics discussed at the Denver conference. Many of the Airlie House participants also attended the Denver conference. For the topics in common between the Denver conference and the Airlie House seminars, half or more of the participants in the latter also participated in the former. Table 1.2 lists the participants in each seminar and the titles of the final reports from each of the seminars.

The meetings were organized as six one-week-long workshops with six to eight experts assembled at the Airlie House residential conference center in northern Virginia. Each seminar included analysis, discussion, and report

Table 1.2 Seminar topics and participants, the Airlie House Seminars

Seminar Title	*Seminar Participants*
A Consideration of Law in Archaeology	Lawrence Aten*, Vernon Bellecourt, Joe Brecher, Michael Moratto, Charles R. McGimsey III*, Marvin Woolf
Cultural Resource Management	Adrian Anderson*, Hester Davis*, Mark Grady, William D. Lipe*, Bruce McMillan, Lloyd Pierson*, Margaret Weide
Guidelines for the Preparation and Evaluation of Archaeological Reports	Keith Anderson*, Hester Davis*, Rob Edwards, Michael B. Schiffer, Stanley South, Gwinn Vivian*
The Crisis in Communication	Louis Brennan, Brian Fagan, Frank Hole, Alice Kehoe, Tom King*, Charles R. McGimsey III*, Nathalie Woodbury
Archaeology and Native Americans	Vernon Bellecourt, Hester Davis*, Cynthia Irwin-Williams, Elden Johnson, Clydia Nahwooksy, Emory Sakequaptewa, Marion White
Certification and Accreditation	Edward B. Jelks, James Judge*, Charles R. McGimsey III*, Stuart Struever, Raymond H. Thompson*, Fred Wendorf

Source: From: *The Management of Archeological Resources: The Airlie House Report*, Society for American Archaeology, 1977

Note: * indicates individual also participated in the 1974 Denver CRM conference

drafting on key topics facing American archaeology at the time. The topics included: the certification of individual archaeologists and the accreditation of institutions and programs; guidance for the preparation and evaluation of archaeological reports; the management of archaeological resources; communication in and about archaeology; archaeology and the law; and, archaeology and the American Indian (McGimsey and Davis 1977: 2–4).

Participants in the seminar about the management of archaeological resources were asked to consider their subject broadly. They should ". . . plan with the total resource base in mind . . . there also must be established a set of archeological problem-oriented priorities, as well as a set of priorities oriented toward the total public good" (McGimsey and Davis 1977: 3). They further were directed to develop a ". . . philosophy of archeological conservation and of what constitutes mitigation, rather than the more restricted concept of salvage" (McGimsey and Davis Sec1977: 3).

The report on the CRM seminar, first affirmed the perspective that the destruction of the archaeological record was a serious problem that needed to be addressed. The participants further noted their view that the emergency/salvage approach as then most commonly practiced was not sufficient. A new approach was needed and it should have two new aspects to it. They wrote:

> The difference now is at least two-fold. Archeologists are becoming involved with the total planning process so they have an active voice in helping determine what must be destroyed. The second difference is the increased awareness that work in a project area – of whatever size – must be placed in a broad topical and regional context if there is to be any possibility of recovering maximum useful data. This awareness necessitates regional overviews and well thought through research designs.
>
> (McGimsey and Davis 1977: 26)

In setting the stage for describing the new approach advocated by CRM, the seminar participants briefly summarized recent development in U.S. laws and public policies. In particular, the NHPA, NEPA, the Archeological and Historic Preservation Act of 1974 (Moss-Bennett), and Executive Order 11593 are highlighted. They suggested that "this increasing concern by American archaeologists for the total resource base paralleled and is perhaps related to a growing concern about resource conservation and environmental quality within American society at large" (McGimsey and Davis 1977: 28).

The CRM chapter in the Airlie House report presents an extended discussion of three topics that today continue to have daily relevance in the practice of CRM and the management of archaeological resources: the mitigation of adverse impacts, the significance of archaeological resources, and compliance (McGimsey and Davis 1977: 28–40.) The section on mitigation

of adverse effects describes three general types: avoidance, preservation (e.g., physical maintenance or protection of an impacted resource), and investigation (i.e., data recovery or excavation). The section also describes different kinds of impacts: direct, indirect, and potential. Terms and concepts that have become standard in CRM. The description and discussion of significance and compliance are similarly contemporary in how the subjects are considered.

Of course, each of these aspects of CRM have been discussed in many different ways and developed since the 1974 seminar (e.g., Barker 2009; Sebastian 2009). Reading the CRM chapter today, one is struck with how much of the procedures that have come to be standard since then was still in flux at the time. It is clear that the NPS added sections to the report after the seminar participants had finished to reflect newly drafted sections of regulations. For example, on pages 38–40 there is a section, "Developments Subsequent to the Seminars (through 1976)" and footnotes on pages 37–38 and 50 refer to an "updating" of the original report text to reflect developing guidance and procedures. McGimsey and Davis (1977: 6–7) describe the process of preparing the seminar reports and the fact that the NPS, specifically the IAS branch, injected additional comments in the report text after all the review by participants. Recall that the Arlie House seminars were funded by the NPS through the office of the DCA who also administered the IAS program and supervised its staff. Hence the overt influence of IAS reviewers and these subsequent additions to the report text.

The second half of the CRM chapter (pp. 40–63) covers a wide range of topics that remain relevant in contemporary CRM:

- sponsor-professional relationships – covering sponsor needs and responsibilities, professional needs and responsibilities, and conflicts of interest;
- planning – discussing the appropriate relationship between stages of planning and types of archaeological investigations;
- contracting – describing scopes of work, research designs, types of contracts, legal requirements and obligations, budgeting, and funding;
- institutional base needed for carrying out CRM projects – administration, staffing, facilities, curatorial capacity, and consulting; and
- the roles and kinds of state and regional planning – discussing state review agencies, State Historic Preservation Officer roles, Section 106 and EIS reviews.

By the time the Airlie House seminar publication was released in 1977 other publications from commercial and scholarly publishers covering CRM had begun to appear. In particular, *Conservation Archaeology: A Guide for Cultural Resource Management* (Schiffer and Gumerman 1977), *Anthropology in Historic Preservation: Caring for Culture's Clutter* (King, Parker, and

Berg 1977), and the third section of *Social Archeology: Beyond Subsistence and Dating* (Redman et al. 1978) included chapters that discussed issues related to CRM or presented case studies of exemplary CRM projects. The NPS IAS program published examples of archaeological resource management planning, project management, and contracting (e.g., Dincauze and Meyer 1976; Talmage and Chesler 1977; Interagency Archeological Services 1978; Mayer-Oakes and Portnoy 1979). Publications of CRM project reports or summaries of them also began to appear and circulate widely (e.g., Breternitz 1983; Schiffer and House 1975, 1977; Teague and Crown 1982). As a quickly developing aspect of the profession and new growth, CRM attracted comment and focused professional attention at the time.

At the end of their introduction to the Airlie House report, McGimsey and Davis (1977: 7) conclude that the report ". . . attempts to pull together a great deal of current thinking about the archeological profession and its problems and thereby give everyone a solid point of departure for development and growth." Looking back at the report, it also has the benefit of recording the status of thought at an important point in the history of archaeology and providing those of us looking back a solid foundation for consideration of how to deal with current challenges.

"A conservation model for archaeology"

Bill Lipe's article, formally published in the regional journal *The Kiva* in 1974, started out as a conference presentation in 1971 and was reworked by Lipe based on comments and discussions on and about it before being published. The article is mentioned in many, many other articles, books, and chapters in books as foundational for CRM. It is reprinted in a number of collections, including, quite appropriately, as Chapter 1 in *Conservation Archaeology* (Schiffer and Gumerman 1977).

Lipe begins the article by reviewing the state of archaeological affairs in the early 1970s. He recognizes as did others that archaeological sites were being destroyed at an alarming rate by modern development. At the time, much of this destruction related to development projects undertaken directly or supported in some manner by the federal government (e.g., Davis 1972). Lipe's innovation in thought was to turn the problem of site destruction on its head. Rather than developing better and better ways to salvage archaeological data from sites about to be destroyed, Lipe recommended that archaeologists find the means to avoid or at least limit the amount of site destruction. If that wasn't possible, then excavate the sites and recover and preserve the data, but first, try to avoid destroying the sites. In other words, focus on conserving sites, not on digging them up (Lipe 1974: 214).

In order to achieve this kind of change in perspective about archaeological sites, Lipe notes that "archaeological resources must be accorded a higher value by society than they are now, so that more projects will be designed to avoid sites" (Lipe 1974: 215). He identified greater public education and outreach about archaeology and archaeological resources as one important means to

social change, including expanding the existing system of parks and preserves to include more archaeological resources. Another important way of increasing regard for archaeological sites, he argued, is to ". . . greatly expand our efforts to gain institutional and regular access to the planning process with respect to land alteration schemes forthcoming from society" (Lipe 1974: 215–216). As will be noted below, greater involvement in planning for developments and land use is one benefit that derived from the NHPA-related CRM procedures.

Ironically, Lipe's message of resource conservation has been too well-received in some quarters. Lipe (1996, 2009) himself has pointed out the illogic of an overemphasis on resource avoidance as a way of treating archaeological resources. Indeed, it now is recognized that an over-reliance on site avoidance makes resource management more difficult because managers have limited information about the resoruces upon which to base decision-making (e.g., see McManamon et al. 2016: 133–136).

Overall, however, Lipe's article and the notion of conserving archaeological resources as one among several appropriate means of treating them has led to improvements. In a wide-ranging review of this ground-breaking article, Lynn E. Sebastian (2006: 124–125) describes the many ways in which Lipe was prescient regarding the ultimate developments of CRM, his broad perspective on what was needed to achieve the goals that he outlined, and his persistence throughout his career in advancing objectives to meet these goals.

The National Historic Preservation Act and the Archeological and Historic Preservation Act/Moss-Bennett

In 1974, after five years of effort by archaeologists and their political allies, the Moss-Bennett bill was enacted as the Archeological and Historic Preservation Act of 1974. Regarding the NHPA, in 1974 the ACHP published the procedures that federal agencies were obligated to follow to comply with Section 106 of the NHPA (36 CFR 800). Of course, these procedures have been updated many times since the initial publication to reflect subsequent amendments to the NHPA and other changes.

The National Historic Preservation Act of 1966

In the 1960s, general concerns about the destructive impacts to historic properties, especially buildings and structures, of federal development programs, in particular urban redevelopment and highway construction were raised by historians, historical architects, and other historic preservationists (Advisory Council on Historic Preservation 1986: 15–24; Glass 1990; Hosmer 1981: 809–1076; Murtagh 1988: 39–77; United States Conference of Mayors 1966). These concerns led to the enactment of the NHPA in 1966.

This act represents a major expansion of the basic policy of the Antiquities Act of 1906, that there is a public interest in the preservation of archaeological and historic resources, sixty years after the earlier statute's passage (McManamon 1996, 2006a: 166–174; Rogers 2006). NHPA is a very

broadly written statute. In addition, it was expanded in important ways through substantial amendments in 1976, 1980, and 1992. It embraces a wider range of historic property types than either the Antiquities Act or the Historic Sites Act of 1935. It is more inclusive, as well in providing consideration to historic properties that are of local or state significance, a much wider context than the properties with national significance that are focused on by the Historic Sites Act.

Like the Antiquities Act and the Historic Sites Act, the NHPA adheres to the public policy that historic properties have a value to all of the public. Section 1(a)(4) states that

> . . . the preservation of this irreplaceable heritage is in the public interest so that its vital legacy of cultural, education, aesthetic, inspirational, economic, and energy benefits will be maintained and enriched for future generations of Americans.

The noncommercial values of historic properties also are described. The need to recognize and address the importance of these values in public decision-making about the way in which these resources are treated is affirmed in the first part of the statute (Section 1(a)(5)),

> . . . in the face of ever-increasing extensions of urban centers, highways, and residential, commercial, and industrial developments, the present governmental and nongovernmental historic preservation programs and activities are inadequate to insure future generations a genuine opportunity to appreciate and enjoy the rich heritage of our Nation.

Like the earlier statutes, the NHPA has a central policy focus on the public and noncommercial values of historic properties. The ways in which historic properties are treated is of public concern.

The policy espoused by the NHPA calls for the consideration for historic properties within the context of modern development and the contemporary U.S. economy. The law and its procedures require involvement by cultural resource experts and the consideration of impacts to historic properties in the planning of public developments. Early consideration of how a project or program may affect historic properties provides opportunity to avoid or mitigate potential adverse effects in ways that conserve cultural resources. In fact, many examples exist of beneficial effects from well-planned projects. Developments may include or enhance the preservation of historic properties leading to economic, as well as providing aesthetic, associative, and historic benefits. For example, instances of historic structures successfully rehabilitated for modern uses. The rehabilitation of such historic properties may have an additional benefit to enhance the likelihood of their preservation within the context of modern economic conditions.

The NHPA broadens the application of national archaeological and historic preservation policies and procedures than earlier national cultural resource preservation laws. The extent to which it applies varies with the extent of federal involvement. Determination of treatment varies according to ownership of specific resources and whether or not there is any federal involvement in an undertaking that may affect specific resources.

The archaeological community did not participate substantially in the discussions, conferences, or planning from which the NHPA emerged. However, the preservation of archaeological sites was included along with consideration of historic structures and other kinds of cultural resources as the impetus for the new statute and in drafts of the text that became the statute. Richard H. Howland, then Chairman of the Department of Civil History at the Smithsonian Institution and a classical archaeologist as well as an architectural historian, authored a moving essay on the importance of preserving ancient and historical sites and structures in *With Heritage So Rich*, the book that detailed the need for NHPA (Howland 1966).

Expecting the enactment of the NHPA, which had been sent to Congress by Secretary of the Interior Stewart L. Udall in March, 1966, as a suggested bill, the Director of the National Park Service, George Hartzog, formed a small Special Committee on Historic Preservation to advise him on how NPS archaeology, history, historical architectural, and curation programs might be organized to effectively implement the anticipated law (Lee et al. 1966; Glass 1990: 29–30; Mackintosh 1986: 1–6). NPS historian Ronald F. Lee chaired the committee, which also included J. O. Brew and University of Illinois architectural historian Ernest Connelly, who shortly afterwards would be hired by the NPS to lead the newly reorganized archaeology and historic preservation program. Not long after enactment of NHPA, Brew (1968: 4–6) wrote of the importance and potential benefits for archaeology of the NHPA.

However, most archaeologists initially considered the NHPA as a law that dealt mainly with historic architecture and structures, not archaeological sites (e.g., Grady and Lipe 1977). By and large, archaeologists outside of the NPS and the developing community of archaeologists in the State Historic Preservation Offices (SHPO) created by the NHPA did not play major roles in early development of the initial procedures to implement the new law (King, Hickman, and Berg 1977: 30–38; King and Lyneis 1978: 874–875; Townsend 1994; Davis 1996).

The NHPA established organizations (e.g., the ACHP), policies, and preservation tools (e.g., the National Register of Historic Places [NRHP]), that are important parts of the national historic preservation program (see Rogers, Chapter 2, this volume). For the contemporary practice of CRM, one of the most important procedures established by the law are those implementing Section 106. The version of the Section 106 procedures published as final regulations in January 1974 included important references to Executive Order

11593 and NEPA. In 1976, an even more important change was an amendment to the NHPA that incorporated, as part of the Section 106 procedures, the requirements that federal agencies take account of properties that may be "eligible" for the NRHP as well as those already listed. The 1976 amendments changed the law so that this important aspect of the procedures was based on statutory authority rather an executive order which could be reversed easily by subsequent presidential action. Regarding archaeological resources, it also ". . . effectively require[d] that [archaeological] surveys be done in advance of all federal undertakings" (King, Hickman, and Berg 1977: 42).

As the summary of the 1974 Denver CRM conference illustrates, while mentioned in several presentations, neither the NHPA as or whole, nor its Section 106, were a focus of sessions or discussion during this conference. In a recent comment related to this topic, Lipe (personal communication, 2012) recalled that

> . . . in the early 1970s, those of us involved in salvage archaeology in the Southwest were not much aware of the NHPA and its implications. We tended to think more about NEPA as the master planning law under which we would be working, and thought that the Council on Environmental Quality might be the source of regulations that would more fully spell out how archaeological sites were to be handled under NEPA.

During the second half of the 1970s there was considerable debate and disagreement among archaeologists about the need for and value of the NHPA, the NRHP, and related policies and procedures for archaeological resources (Grady and Lipe 1977; King, Hickman, and Berg 1977: 41–44; King 1978). Some questioned the usefulness of the NRHP, inferring that it was an exclusive inventory of important historic properties, mainly already or easily identified historic structures. They did not see how the Section 106 procedures could be an expansive part of the environmental review process.

> . . . The National Register was designed primarily for identifying and helping preserve sites and districts that have already been associated with important events in American history or prehistory or which have already been the loci of significant advances in research. It works well within that objective . . . But it is not a very good tool for dealing with the far larger number of sites about which little is really known but which have research potential and which in fact are the precious data base on which the continued evolution of research archaeology depends . . . I think the National Register can play an important, but limited role in conservation archaeology, as one of a number of tools . . . The Bureaucrats managing the National Register . . . envision an . . . approach . . . with the National Register playing a key role in the impact assessments and mitigation actions demanded by NEPA and other laws. It is this key role I object to because of the redundancy of the National Register and

> because of what I think are inherent limitations in its assumptions as viewed from a research and conservation orientation.
>
> (Lipe 1978: 144)

Two additional concerns were prominent during these initial years of implementing the NHPA and developing CRM. The first concerned how contracts for archaeological investigations were being reviewed and issued (e.g., Interagency Archeological Services 1976a; King 1977; Wilson 1978). It was alleged that contracts were issued based on personal or professional relationships rather than based on the merit of proposals. The second concern was whether the NPS archaeological staff responsible for the program was capable of being responsive to archaeological resource needs and had suitable ability, education, and experience to address them (King and Lyneis 1978: 888–890).

During this period, the NPS Office of Archeology and Historic Preservation (OAHP), which was the program tasked with implementing the national historic preservation program outside the national park system, championed the use of the Section 106 procedures and the NRHP criteria which are incorporated within them. Archaeologists working in CRM, in particular those who worked in the state historic preservation offices established by NHPA, received a flurry of guidelines and regulations suggesting or directing how Section 106 and the NRHP were to be used for archaeological historic properties (e.g., Advisory Council on Historic Preservation 1976; Interagency Archeological Services 1976b; National Park Service 1977a, b, c).

SHPO staffs were part of the national historic preservation program, created by the NHPA and understandably focused on implementation of the NHPA. Section 106 procedures and use of the NRHP became the standard approach for CRM practice. At the state level, guidelines and procedures reflected and utilized the NHPA procedures (e.g., Massachusetts Historical Commission 1977). This new network of archaeologists in SHPO offices was instrumental in the spread of use of the NRHP and Section 106 procedures.

One measure of the centrality that the Section 106 procedures have taken in the practice of contemporary CRM is the number of pages and text devoted to descriptions and discussions about it in current books on CRM methods. King's (2004) standard text on cultural resource laws and practice takes over 100 pages (pp. 81–190) of a 400-page text to cover the procedures; Neumann and Sanford (2001: 27–54) devote over half of their chapter on "Laws, Regulations, and Protocols" to Section 106.

Moss-Bennett, the Archeological and Historic Preservation Act of 1974

In the late 1960s and early 1970s, archaeologists worked with Congress to achieve broader attention to the adverse impacts to archaeological resources

of a wide array of federally sponsored construction projects and development programs (Davis 1972). The eventual result was an expansion of funding for archaeological investigations done to mitigate the adverse effects of federal undertakings. The additional funding was required by legislation, known in Congressional shorthand as the Moss-Bennett bill, which amended the Reservoir Salvage Act of 1960 (King, Hickman, and Berg 1977: 38–40; McGimsey 1981, 1985: 327). This amendment also established a wider archaeological coordination role for the Secretary of the Interior and the NPS, which carried out these responsibilities for the Secretary. Included were the responsibilities to prepare regular reports summarizing federal archaeological projects and programs for the Secretary to report to Congress, investigation of damage or destruction to important archaeological data through federal actions, and assistance to agencies when archaeological resources were discovered unexpectedly during federal construction projects.

The long process that led to enactment preoccupied many of the politically active archaeologists in the late 1960s and early 1970s. Its legislative and legal reference are: Public Law 93–291 and 16 U.S.C.469–469c. McGimsey along with Carl Chapman of the University of Missouri was at the center of archaeological lobbying for the Moss-Bennett legislation. McGimsey (1985: 326–327; see also several chapters in McGimsey 2004) initially expected that the legislation would pass quickly, however, in his enlightening history of the process, he documents, with irony and wit, the five years of work required to push the bill to enactment.

Signed into law on 24 May 1974, AHPA amended and expanded the Reservoir Salvage Act of 1960. The AHPA required that Federal agencies provide for

> . . . the preservation of historical and archeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of . . . any alteration of the terrain caused as a result of any Federal construction project of federally licensed activity or program.
>
> (AHPA, Section 1)

This greatly expanded the number and range of federal agencies that had to take archaeological resources into account when executing, funding, or licensing projects. The Reservoir Salvage Act had required such attention only of Federal agencies, mainly the Corps of Engineers and the Bureau of Reclamation that constructed reservoirs and related structures.

The AHPA built upon the national policy, set out in the Historic Sites Act of 1935, ". . . to provide for the preservation of historic American sites, buildings, objects, and antiquities of national significance . . ." The AHPA expanded the policy by focusing attention on significant resources and data, but does not require that they be shown to be of "national" significance. The

connection between the 1935 statute and the AHPA is mentioned explicitly in the first section of the statute.

The AHPA followed in the tradition of emergency/salvage archaeology, as might be expected since it was an amendment to the primary statutory authority for this approach, the Reservoir Salvage Act. The impetus for AHPA was to mitigate the destruction of archaeological sites, which was occurring throughout the country, frequently as the result of actions funded or otherwise supported by federal agencies. The Reservoir Salvage Act, enacted in 1960, required archaeological emergency/salvage as part of dam construction and reservoir creation projects, but not for other kinds of federal actions (Davis 1972.) AHPA was intended to establish the same kind of archaeological emergency/salvage requirement for other kinds of federal activities. The expectation in the requirements of the act seemed to be that mitigation of the destructive impacts from federal construction projects would continue to be, as in the existing emergency/salvage programs, the excavation of sites, rather than a broader palette of mitigation options that included *in situ* conservation.

The statute assigns to the Secretary of the Interior substantial authority to act for the preservation of historical and archaeological data and remains. Section 3 allows the Secretary to assist other Federal agencies and even private organizations or individuals in meeting the historical and archaeological preservation requirements under this statute if the project is expected to result in the loss or destruction of significant scientific, historical, or archaeological data. Section 4 authorizes the Secretary, upon notification that significant historical or archaeological data may be irrevocably lost or destroyed to undertake necessary studies independent of, although in consultation with, the Federal agency responsible for undertaking, funding, or licensing the project.

In Section 5 the Secretary of the Interior is assigned several roles in coordinating historical or archaeological activities authorized by this statute, including consultation about the ownership and appropriate repositories for artifacts and other remains recovered by investigations conducted under the statute. This is one of the statutory authorities for the government-wide regulations for the curation and care of Federal archaeological collections and associated records (36 *CFR* 79). Section 5 also calls for the Secretary to compile a report for Congress on archaeological survey and recovery activities authorized under this statute. This particular requirement is one of the bases for the *Secretary of the Interior's Report to Congress on Federal Archaeological Activities and Programs* (e.g., Keel et al. 1989; Departmental Consulting Archeologist 2009, 2010; copies of all of the Reports to Congress are available in tDAR at https://core.tdar.org/collection/11054/federal-archaeology-program). The Departmental Consulting Archeologist, National Park Service carries out this reporting requirement for the Secretary. Amendments to the Archaeological Resources Protection Act in 1988

added additional topics to the government-wide archaeological reporting, which also is authorized by sections of the NHPA (Knudson and McManamon 1992).

The statute, in Section 7, also authorized federal agencies responsible for projects to transfer to the Secretary of the Interior funds to assist them in meeting their responsibilities, up to 1 percent of the total amount authorized for the project. This particular aspect of the AHPA continued the practice of having NPS (as delegated by the Secretary of the Interior) oversee the archaeology done for other agencies' projects. Unfortunately, differing interpretations of this section resulted in a general understanding within agencies that it also limited agencies to expenditures for archaeological data recovery of 1 percent of projects' authorized total funding amount (McGimsey 1985: 330).

Developing regulations and procedures to implement aspects of the AHPA proved to be problematic. Differences in interpretations of Congressional intent regarding the 1 percent of project costs to be identified for archaeological studies is one example. Another problem with implementation was that the statute itself did not provide for any systematic review of federal projects to determine whether or not they would affect archaeological sites. The procedures for project review under Section 106 of the NHPA (36 CFR 800), on the other hand, did provide for such a structured review of federal actions.

There also were disagreements about how the funding for the new archaeological investigations authorized by the law should be distributed. Some archaeologists (e.g., Scovill 1974b; Jennings 1963, 1985: 286–287) believed that the use of cooperative agreements between educational institutions and government agencies, like the NPS, that were administering emergency/salvage archaeology were effective and efficient means of funding. They argued that these agreements allowed for flexibility and economy in the use of existing funding while encouraging the university professionals to develop research expertise related to the archaeological sites investigated. However, others (e.g., King 1977; Wilson 1978) criticized such arrangements as "an 'old boy' network" that funneled funds to organizations that were not necessarily the best at doing the research.

Proposed guidelines that would have implemented reporting requirements for archaeological data recovery investigations were published in draft for public comment as 36 CFR 66 (National Park Service 1977b). However, they never were finished and republished as final regulations. Much of the guidance in the draft was incorporated in or superseded by sections of the *Secretary of the Interior's Standard and Guidelines for Archeology and Historic Preservation* (National Park Service 1983) and other official guidance.

There is general agreement that the lack of explicit linkage between AHPA and the NHPA and NEPA was a serious oversight that should have been avoided (King, Hickman, and Berg 1977: 30–44; King 1978; McGimsey 1985: 330; Davis 1996). The drafters and proponents of the AHPA,

however, did not explicitly relate this legislation with the then-developing approach to archaeological preservation as part of the wider historic preservation movement. This latter approach based upon the implementation of the NHPA, eventually came to emphasize the use of planning, the importance of the NRHP criteria for planning and site protection, project review under Section 106 of the NHPA, and the preservation of sites *in situ* when possible and feasible.

Looking back on it, the passage of AHPA contributed importantly to the development of CRM (McGimsey and Davis 1977; McGimsey 1981, 1985; Davis 1996). For one thing, it stated clearly that all federal agencies were authorized to fund archaeological investigations, reports, and other kinds of activities to mitigate the impacts of their undertakings on important archaeological sites. A second benefit was the pressure brought upon federal agency managers to meet their archaeological responsibilities during the lobbying for passage of the bill. The interactions with archaeologists supporting the bill "primed the pump" and served to push the agencies to comply once the law was enacted. Finally, the extensive lobbying efforts by individual archaeologists and archaeological organizations between 1969 when the bill was first drafted and its passage in 1974 alerted much of the archaeological community in the United States to the impact that government actions were having on archaeological resources and the importance of keeping alert to public statutes and regulations, government programs, and new legislation.

CRM: a better or just a different approach to preserving archaeological resources?

Was CRM a reaction in opposition to emergency/salvage approach or a continuation, improved by incorporating a greater focus on the conservation of resources, in the same tradition (i.e., with the general goal of preserving archaeological resources)? Although some CRM proponents drew a clear line demarcating the practice of emergency/salvage archaeology from the conservation ethic of CRM, there are clear links between the two. One, of course, is that many of the same individual archaeologists and archaeological organizations were involved in both. Perhaps there are no better examples of this than Bill Lipe and Don Fowler. Both of them at the beginning of their archaeological careers in the late 1950s and early 1960s had important roles in the Glen Canyon emergency/salvage archaeological project (Fowler 1986: 148–150, 2011: 242–326; Lipe 2012). Both of them also have been influential in the development of CRM through their publications, projects, and training of graduate students and professionals. Likewise, Hester Davis, Tom King, and Bob McGimsey are prominent examples of archaeologists who participated in emergency/salvage programs early in their careers, but moved into CRM influencing its development as part of their own career trajectories.

Connections between emergency/salvage archaeology and CRM also have been noted on other levels. Jennings (1985: 281) offered his perspective regarding philosophical links between the two perspectives. In his view, the River Basin Survey emergency/salvage program mission and goals marked

> . . . a nationwide acceptance by archaeologists of a leading role in the conservationist movement . . . one can reasonably argue that Cultural Resource Management (CRM), currently the strongest force in shaping Americanist archaeology, is a direct legacy of the 1940s, 50s, and 60s. It is merely a more self-conscious posture, one more restrictively and complexly defined.

Jennings (1985: 293) believed that emergency/salvage archaeology ". . . contributed heavily to the philosophy that shaped the course of CRM; total excavation simply became unacceptable . . . for both CRM and the salvage concept, preservation was the shared goal."

At other levels, Wendorf (1962) and Jennings (1963, 1985) describe aspects of emergency/salvage archaeological practice that are basic to CRM regarding logistics, research strategies, method, and technique:

- Investigations were located where developments were being planned, not where a particular researcher chose to investigate.
- CRM developed a complex administrative framework, although a different one than the institutional relationships developed in emergency/salvage archaeology.
- The substantive results of both emergency/salvage archaeology and CRM reflect the diversity of the U.S. archaeological record, at least in part because the projects for which investigations were being done were spread around geographically, not focused in areas where archaeologists might have selected independently because they knew sites were there.

Jennings (1985: 293) identified three additional improvements to archaeological practice that were developed and/or elaborated by emergency/salvage archaeology and have been further developed and widely utilized in CRM: (1) the effective use of heavy equipment for archaeological excavation in special circumstances; (2) the development and use of permanent central laboratories for large archaeology projects, such as the Smithsonian's in Lincoln, Nebraska, as part of the Missouri Basin emergency/salvage archaeological program; and, the use of multidisciplinary research teams, such as the one Jennings assembled for the Glen Canyon Project (Fowler 2011: 242–326; Jennings and Sharrock 1965).

Despite these similarities, there are important ways in which the conservation perspective in CRM and the emergency/salvage approach differ. In their collection of articles on conservation archaeology, Schiffer and

Gumerman (1977) take pains to distinguish CRM from the emergency/salvage archaeology.

> Cultural resource management is more than just new jargon or a subterfuge for salvage archaeology. It is the realization of a new social philosophy for the treatment of the all too ephemeral materials that contribute to our understanding of the cultural past . . . [In] compliance with its legislative underpinnings, cultural resource management studies entail sophisticated research planning, execution, and results – consistent also with the highest standards of modern archaeology.
>
> (Schiffer and Gumerman 1977: 1–2)

Thompson (1974: 15–16) early on pointed out what may be the most important and basic contrast, one from which other differences emerged. He noted that typically in the emergency/salvage approach, archaeologists passively accepted the destruction of sites and focused on data recovery. On the other hand, the conservation approach involved archaeologists in the earlier consideration of planning alternatives and allowed for a wider range of outcomes including *in situ* preservation of archaeological resources.

There are a number of important ways in which CRM archaeology differs from the emergency/salvage approach prior to the 1970s. CRM archaeology is much more directly involved during the planning stages of public projects and in the identification and evaluation of archaeological resources that might be affected by projects. CRM archaeology is more involved with a full range of treatments of archaeological resources rather than a limited focus on data recovery. Finally, CRM archaeology has involved a transformation since the days of emergency/salvage archaeology in the size and structure of the profession.

CRM and planning

The most obvious difference is how CRM is enmeshed in the planning procedures for public undertakings to a much greater extent than ever was the case for emergency/salvage archaeology. Both the NHPA and NEPA require that public agencies take account of cultural resources in planning their own programs or projects that they are undertaking with state or local agencies or with private firms. Both laws and the procedures and regulations that implement them are important because they establish a national policy of considering the effect of public actions on the natural and historic environment during the planning stages of public projects. This consideration requires the identification and evaluation of cultural resources as part of public planning. If significant resources are found and it is determined that there will be an adverse impact on them, these impacts must be considered explicitly in selecting final alternatives for action. In many cases, the impact to significant resources can be avoided or mitigated. The approach

to planning required by NHPA and NEPA has moved archaeologists and other CRM specialists into the planning process. Although emergency situations requiring archaeological investigations during the construction phase of projects, right in front of the bulldozers, still occur, they are much less common than during the days of emergency/salvage archaeology. This aspect of conservation in archaeology envisioned by Lipe in his 1974 article is by and large standard practice in contemporary CRM.

CRM and identification and evaluation investigations

In part because of the consideration of cultural resources in project planning, CRM archaeology involves many more investigations that focus on identification and evaluation of resources than emergency/salvage archaeology did. The identification and evaluation of archaeological resources is an essential aspect of CRM and one that is particularly challenging for some kinds of archaeological sites. Discovery of archaeological resources that are unobtrusive and in areas where visibility is poor usually is difficult. For example, many archaeological resources do not contain architectural remains that help to signal their existence and location. Frequently archaeological sites are buried below the surface, or, if they are on the surface are hidden by thick vegetation (e.g., McManamon 1984). Relatively costly, labor-intensive investigations frequently are necessary for the discovery of archaeological resources where these environmental conditions exist, much more so than for other kinds of cultural resources, for example, historic structures.

The evaluation of archaeological sites involves the determination of the importance or significance of each site or of a group of sites. Most often such significance is based upon what can be learned about the past from the resource being evaluated. However, as is the case with other cultural resources, archaeological resources also may be important because they are associated with important individuals, events, or historical patterns, or because they illustrate important aspects of architecture or design (Hardesty and Little 2000; Little et al. 2000). In most cases, the information needed for archaeological evaluations to be made also requires labor-intensive investigations, in these cases at the site level.

In U.S. CRM law and regulations, cultural resources must be determined to be significant enough to be listed on or eligible for listing on the NRHP to be considered for preservation in the context of federal undertakings or programs. On federal lands, archaeological resources also are protected from deliberate damage by the provisions of the Antiquities Act and ARPA. These laws require that the removal or excavation of archaeological resources be undertaken only as part of scientifically-based investigations, unless these resources have been determined to be no longer "of archaeological interest". Land managers may make a determination that resources have lost their significance under procedures established in the regulations implementing ARPA only after careful consideration of the facts of a case.

CRM and the treatment of resources

After cultural resources have been identified and evaluated as being important enough for some kind of further treatment, the exact kind of treatment must be decided upon. In emergency/salvage archaeology, the overwhelming treatment was excavation or data collection. Preservation *in situ* or other ways of preserving a site intact were not typical options. This is another clear difference between emergency/salvage archaeology and CRM. At present, archaeological resources discovered and evaluated as significant that are within the impact area of an undertaking with federal involvement frequently are excavated and their data recovered as an agreed-upon means of mitigating the impact of the federal undertaking. However, because significant sites may be identified earlier in project planning and implementation, options of avoidance and *in situ* preservation are more likely to be considered and much more likely to be implemented than under the emergency/salvage approach. For archaeological resources on public land that are not threatened with destruction by modern construction or agency operations, *in situ* preservation is a common general treatment; however, overuse of an avoidance approach has its own problems (e.g., see Lipe 1996, 2009; McManamon et al. 2016; Sebastian and Lipe 2009).

Along with the focus of archaeological fieldwork on site identification and evaluation studies, the *in situ* preservation treatment has changed the kind of archaeological data generated by most CRM investigations. While there is more locational information and data from a wider range of archaeological sites in contemporary reports and datasets, there is less information about the archaeological context because most of the data are not from controlled excavations. This is a change from the kind of data typically recovered by the excavation focus of emergency/salvage archaeology. This may also account for one of the critiques of CRM archaeology, for example as expressed by Jennings (1985: 281): "one can also suggest that CRM is extraordinarily wasteful and inefficient if one measures funds expended against useful data recovered and disseminated."

When *in situ* preservation is the selected treatment, the agency responsible for management of the resource must also decide if further intervention to stabilize or protect the resource is necessary and whether the agency wants to interpret the site actively. Note that this kind of situation is what Lipe (1974: 226–229) had in mind in his recommendation that more "archaeological preserves" be created. For sites that are preserved on public lands, more detailed kinds of treatments may be necessary to ensure stability and long-term preservation of the sites. Agency personnel must take further steps to implement these treatments. A site, for example, might be threatened by erosion by fluctuating lake levels and need shoreline stabilization to protect its deposits. In other situations, an agency office might decide that a site's location near to a visitor center or public reception area provides an opportunity for public interpretation of the site. In either case, the agency

will need to take additional steps to accomplish the treatment decisions that it makes regarding the *in situ* preservation of the resource.

Long-term management of archaeological resources is required of all federal agencies by the Antiquities Act, ARPA, and Section 110 of the NHPA. For these agencies, management means three main duties: (1) carrying out programs to identify and evaluate archaeological resources on the lands for which they are responsible, (2) executing the treatments decided upon for *in situ* archaeological sites on agency lands, and (3) caring for the physical archaeological collections, as well as the digital and physical reports and records related to the sites. For public agencies that do not manage land, the first two aspects of long-term management may not apply or may apply only in a few instances. However, the third aspect of long-term responsibilities will apply for these agencies to the extent that their projects and programs result in the collections, including associated records from archaeological surveys, site examinations, or excavations.

A national network of CRM experts

In the early 1970s, the NHPA, NEPA, EO 11593, and the AHPA placed new requirements on federal agencies to consider archaeological resources as part of their programs, projects, and undertakings. One result of meeting these new requirements was that a much wider range of public agencies, in particular at the federal and state levels, began to employ professional archaeologists and other CRM specialists. The employment of professional archaeologists increased in private architectural and engineering firms and other consulting business, including some set up specifically to conduct the CRM archaeological work required by the new laws and regulations. At the 1974 Denver CRM conference, McGimsey and others had predicted something like this increase in jobs, and that jobs would differ from those commonly held by archaeologists prior to this period. McGimsey (1974: 175) noted that the discipline of archaeology would have to:

> . . . create and accord proper professional recognition to a fairly large body of archaeological resource managers. It must develop and coordinate a set of full or nearly full-time research archaeologists. Finally, and concomitant with the above two changes, it must accept that a greatly reduced portion of the total professional effort will be devoted to class-room teaching.

As Lipe noted regarding the Denver CRM conference and Scovill implied in his comments there, at the time, many federal agencies were in the process of hiring their own staff archaeologists and beginning to fund their own CRM programs, rather than continuing to rely on the NPS to manage this work. During the 1970s, federal and state agencies began to employ professional archaeologists in numbers never before seen and to place them in offices throughout their organizations. This was especially so among land-managing agencies, such as the Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Department of Defense services, and the U.S. Forest

Service. The General Accounting Office (GAO 1981: 46–48) in a report about federal archaeology at that time, summarized some of these hiring activities. GAO described Bureau of Land Management as having four cultural specialists in 1973 and 112 full-time archaeologists by 1978. The Forest Service reported having increased a "minimal" archaeological staff to about 100 archaeologists by 1980. The Corps of Engineers reported increasing its staff of archaeologists from 30 in 1975 to 79 by 1979 (see Lindauer, Chapter 5, and Schlanger and Larralde, Chapter 6, this volume).

Prior to this period, the relatively few professional archaeologists employed in federal service were in the National Park Service and the Smithsonian Institution. Agencies, such as the Federal Highway Administration and the Environmental Protection Agency, that did not manage land, but provided funding or licensing for development projects, such as highways, waste water treatment facilities, and energy plants, tended not to employ as many archaeologists on their staffs. More frequently, these agencies met their CRM responsibilities by requiring them of the state agencies or private firms that carried out the development projects. This pattern eventually led to the hiring of professional archaeologists by state agencies and private firms that found themselves required by federal agencies to carry out necessary CRM programs and resource studies.

By the end of the 1970s, federal and state agencies had developed a network that included hundreds of professional archaeologists filling positions in headquarters, regional, and local offices undertaking a variety of activities to implement CRM laws, policy regulations, and guidelines. At the state government level, State Historic Preservation Offices established by the NHPA and its implementing regulations required that each State office had a professionally qualified archaeologist on its staff (see Robinson, Chapter 7, this volume; subsequent amendments to the NHPA enabled tribal governments to establish preservation programs and hire professional CRM staffs; see Dongoske, Dongoske, and Ferguson, Chapter 8, this volume). As a matter of personal history, my first professional job following earning my M.A. was as Staff Archaeologist at the Massachusetts Historical Commission, the SHPO office in Massachusetts. The position I filled was a new one. The state was required by the NPS to have a professionally trained archaeologist on their staff for the state to qualify for annual funding from the federal Historic Preservation Fund. Situations such as this in particular helped in the establishment of a national network of professionally qualified archaeologists in the public sector at the state level.

In addition to the growth of professional archaeologists in the public sector, a similar growth of professional employment occurred in private firms (Doelle and Phillips 2005; Roberts et al. 2004; see also Majewski, Chapter 9, and Dore, Chapter 13, this volume). Such firms ranged in size from large national or international consulting firms that needed to comply with NHPA and NEPA requirements for many of the public projects they bid on to small, newly organized firms set up to undertake specific CRM investigations needed by public agencies.

Altschul and Patterson (2010) describe the professional employment in archaeology based on a thorough collection of data from the public agency,

private firm, and academic sectors. Their findings are that, as of 2008, 28 percent of professional archaeologists (2,500) worked for public agencies, 56 percent (5,150) worked for private firms in the CRM sector, and 16 percent (1,500) in academic settings (Altschul and Patterson 2010: 310–312). The sense of the archaeologists at the 1974 CRM conference who commented on the anticipated increase in archaeological activities, and concomitant expansion of employment for archaeologists, has been borne out in the decades since the conference.

CRM and "the New Archaeology"

During the same period when CRM was getting started, the archaeological profession in the U.S. experienced an upheaval in theoretical, methodological, and technical orientations referred to as "the New Archaeology" (e.g., Watson, LeBlanc, and Redman 1971; Redman 1991). King (1971: 255–258) suggested that a conflict existed between the theoretical and methodological ambitions of the new archaeology and the requirements of emergency/salvage projects. One might surmise that his juxtaposition of the two perspectives is rhetorical because by the end of the article he has suggested two ways in which this conflict could be remedied.

However, King's article raised concerns among some archaeologists that those advocating the new archaeology approach would abandon the archaeological record to the destructive forces of modern development and looting. In a letter to *Science* following-up on Hester Davis' 1972 article about the crisis in American archaeology, Ruth Gruhn (1972: 354) declared:

> given the present self-righteous, more-scientific-than-thou attitude of new archaeologists, which is so clearly expressed throughout King's article, . . . it is doubtful that cooperation between academics and salvage program administrators in the face of the immediate destruction described by Davis can be achieved in time.

The debate and letter-writing about the new archaeology and emergency/salvage archaeology continued in 1972 with another letter to *Science*. This time the letter writers (Longacre and Vivian 1972) were objecting to Gruhn's characterization of the situation among archaeologists and her comments about the new archaeology. Longacre and Vivian argued that "theory-oriented" and problem-oriented research, as advocated by the new archaeologists, was not precluded in emergency/salvage projects. In their comment Prescott College's work on Black Mesa for Peabody Coal strip mining project, archaeological studies by the Arizona State Museum for the Arizona Department of Transportation, and hypothesis-testing research by students at the University of Arizona using data collected as part of a development project at Carter Ranch are given as examples of emergency/salvage projects that incorporated the methods advocated by the new archaeology (Longacre and Vivian 1972: 812.)

The notion that emergency/salvage projects could not incorporate aspects of the new archaeology is most clearly shown to be false by Lewis Binford's investigations at the Hatchery West site near Carlyle, Illinois (Binford et al. 1970). Binford (e.g., 1962, 1964; Binford and Binford 1968) was at the center of the movement. His advocacy of research design is much more compatible with how CRM investigations are organized than with the stereotypical salvage/emergency approach. However, the investigation he led at Hatchery West was part of an emergency/salvage project for which the fieldwork was done in 1962 and 1963. The analysis by Binford and his collaborators at Hatchery West demonstrates that problem-oriented research based on an explicit and scientific research design, key aspects of the new archaeology, could be part of an emergency/salvage archaeology project.

Many of the archaeologists who began their careers in the 1970s filled the new CRM jobs in government agencies and consulting firms that became available at that time. Members of this professional cohort frequently were trained in graduate programs where aspects of the new archaeology were taught. Fred Plog, among the earliest advocates of the movement, argued that

> . . . the intellectual traditions new archeologists have introduced . . . should form the basis for training for archeologists concerned with cultural resource management and the issues that cultural resource management raises . . . specifically . . . goals, 'regional archeology,' areal survey, and excavation.
>
> (Plog 1978: 424)

While some components of the methodological and theoretical orientations of the new archaeology were not directly applicable to CRM projects, explicit and detailed research designs to guide field and analytical activities were widely used. Other scientific methods advocated as part of the New Archaeology program, e.g., explicit use of hypothesis testing in analysis, formal sampling method and techniques in fieldwork, were used frequently in CRM investigations.

In their collection of articles about early CRM projects, Schiffer and Gumerman (1977) include many examples that apply the methods and techniques of new archaeology to research designs, sampling strategies, site estimation and evaluation, impact assessment, and data recovery efforts. Projects included in the collection come from all areas of the United States: Arkansas, California, Missouri, New York, South Carolina, and the Southwestern states. In his review of the long-term effects of the new archaeology, Redman (1991: 297–298) notes that:

> . . . the New Archaeology . . . had an important impact on the professional structure of our discipline. New Archaeology's emergence

> coincided with a period of great growth in numbers of practitioners . . . Many of the people who matured professionally in the seventies during the New Archaeology era are now involved in public archaeology, either through positions with government agencies or in conducting fieldwork for these units. Their methodological and philosophical focus has been on developing data-recovery strategies and management principles. The New Archaeological emphasis on research design and hypothesis testing is fundamental in much of public archaeology today.

Connections between the new archaeology and CRM are chronological and functional. Both involved changes to the status quo and occurred at about the same time. Aspects of the new archaeology, in particular greater attention to explicit research designs, links between analytical testing and interpretive outcomes, and site discovery and evaluation methods and techniques, directly related to issues and topics at the center of CRM. Grady and Lipe (1977: 2–3) remarked on this essential point regarding CRM investigations.

> . . . [R]esponsible archaeological resource management must be done within the context of modern, evolving, archaeological research concepts, methodologies, and research problems (Schiffer and House 1997: 163–186). Cultural resource planning and impact mitigation require knowledge about the resource, gained from existing literature and museum files, or from new fieldwork. Furthermore, decisions affecting the future of cultural resources must be made from the standpoint of a sophisticated understanding of their research potential. In none of these instances will the purely rote collection of data suffice. Management-oriented research and assessment require a mature research framework . . .

Many archaeologists beginning their careers in the CRM sector during its early decades internalized at least some of the aspects of the new archaeology in their approach to CRM.

CRM: the critique and the challenges

The rapid, substantial changes within the archaeological community during the 1970s summarized here sparked discussions, debates, and disagreements regarding the benefits of CRM and the quality of archaeological work done as part of it. Changes in the proportions of professional archaeologists employed in different sectors of the discipline and variation in and new kinds of professional responsibilities and duties caused debates about ethics, relevance, and values. In an essay reflecting his observations of 50 years of archaeology in America, Jesse Jennings had harsh commentary for CRM:

> I mention the last convulsive event merely in passing . . . It is the traumatic refocusing and unfocusing of archaeological effort in the early 1970s on what is called Cultural Resource Management. This I can conservatively label as a mixed blessing, which has often led to grave mistakes and has had costs far beyond its scientific rewards; while there are a few bright spots in the record, on balance CRM has generally harmed our discipline.
>
> (Jennings 1986: 60)

In earlier comments, Jennings (1985: 281) was similarly critical of exorbitant costs that were attributed to some CRM projects: "one can also suggest that CRM is extraordinarily wasteful and inefficient if one measures funds expended against useful data recovered and disseminated." He also expressed concern about the professional standing of archaeologists who were in the CRM sector of the discipline.

> CRM and its inventories require a work force of specialists far larger than the salvage operations ever mustered, but the contributions to archaeological knowledge remain scandalously small for the funds expended. Even worse, and far more serious are the losses the CRM contract archaeologists themselves suffer. Those include reduced self-esteem, loss of autonomy and independence of action, and eroded scientific integrity, as bureaucrats and contracting officers reduce archaeology to numbers and even prescribe the procedures to be used in the field.
>
> (Jennings 1985: 293)

In general the debates and disagreements have moderated from such a vitriolic level. However, not all of the issues raised in the professional turmoil over CRM during its early days have been resolved. Much of the contemporary archaeological fieldwork done in the United States is tied to CRM. So topics related to CRM, for example, professionalism, quality of results, sharing and preservation of information, costs, etc., continue to be important to all American archaeologists.

Many, perhaps most, professional archaeologists support conservation as the appropriate treatment of the *in situ* archaeological record. Operationally, this approach has the goal of managing archaeological resources for long-term preservation, yet allowing prudent, justifiable use of the resource for research. There is general agreement that the network of professional archaeologists in the various sectors of the discipline, e.g., public agencies, CRM firms, and academic settings, and the statutes, policies, regulations, and guidelines that protect archaeological resources are important to maintain and even strengthen.

There are a great number of challenges facing contemporary CRM. Among the most important ones are a combination of long-term issues that

existed in the salvage/emergency era and new issues that have developed subsequently:

- The continuing struggle of providing for easy discovery and wide access to data and information from and about CRM investigations so that the information can be used and inform subsequent work. This challenge may be particularly acute for archaeological CRM, but it holds for other disciplines and kinds of cultural resources as well.
- The continuing struggle for dealing effectively with physical archaeological collections and paper records. Related to this is the rapidly growing challenge of preserving for future uses the expansive body of digital archaeological and related data.
- The challenge of maintaining the professional archaeological workforce in the face of inevitable demographic shifts, such the retirement and passing of professionals who were engaged in the first decades of CRM.
- An overemphasis on *in situ* preservation and site avoidance as management strategies for archaeological sites.

The focus of this article is on the events, important publications, individuals, laws, and regulations that affected the development of CRM in the second half of the twentieth century. I describe how CRM developed in the United States emphasizing contemporary CRM as it relates to archaeological resources. Many of the issues and topics also apply to CRM as it relates to historic structures, cultural landscapes, traditional cultural places, and other kinds of cultural resources. CRM is a vital part of archaeology as it is conducted in much of the world today. In the United States, a high percentage of professional archaeologists are engaged in this sector of the discipline. CRM activities have a wide effect on how archaeology and archaeological resources are perceived and in how they are preserved.

In the late 1980s and early 1990s, amendments to key sections of the NHPA, additional laws, policies, and regulations affected the practice of CRM in the United States. The Native American Graves Protection and Repatriation Act (NAGPRA) in 1990 and broadening of the ACHP procedures increased the involvement of American Indian, descendent, ethnic, and other local communities in archaeological and historic preservation planning and decision-making.

Amendments to the Archaeological Resources Protection Act provided important changes that made effective prosecution of those who looted or vandalized archaeological resources (McManamon 1991). In addition, the Abandoned Shipwreck Act modified traditional commercial salvage law to provide for alternative consideration of shipwrecks and other types of underwater cultural heritage resources for their historical, scholarly, and scientific values. Although not dealt with in this essay, these developments have had important effects of the practice of CRM in the twenty-first century.

In the United States, unlike some other countries, there is no single government agency or organization that provides comprehensive expertise and services

regarding archaeological, cultural, and historical resources. The NPS, which might have assumed such a role in the 1970s, instead used the archaeological, historical, and historical architectural expertise within the organization to develop general standards and provide guidance for cultural resource identification, evaluation, planning, documentation, preservation, protection, and treatment that could be used by all public agencies (e.g., National Park Service 1983). Historical interpretations and judgments about how public archaeology in the United States has come to be organized during the last generation and the roles of various individuals and organizations certainly will continue to be debated (McGimsey 2006a, b; McManamon 2006b: 7–8; Wendorf and Thompson 2002: 327). Overall, most probably agree with Lipe (1996: 23) who concludes that "the inclusion of archeological sites in a larger historic preservation system has and will continue to have positive results."

A primary point is that a broadly organized discipline, like archaeology, or more broadly CRM, without a strict hierarchical power structure needs effective leadership and coordination (see Sebastian, Chapter 15, and McManamon and Rogers, Chapter 16, this volume). Due to the decentralized activities and responsibilities of many public agencies at various levels of government, the existence of private sector firms that play vital roles, and an academic sector where professional training occurs, collaborative leadership in archaeology and CRM are needed to ensure strong and consistent effort, integration of activities, and accessibility of results.

Acknowledgments

A less detailed version of this essay was published in a volume of essays about the salvage/emergency archaeology of the River Basin Archaeology Program (Banks and Czaplicki 2014). I appreciate the opportunity that the editors of that collection provided for me to look into the events, legal framework, programs, and publications that affected and shaped CRM in its early days. The initial idea for this essay was to expand on an entry I had prepared on "Cultural Resource Management" (McManamon 2000) for the *Encyclopedia of Archaeological Theory and Method* (Ellis 2000). As I delved into the history of CRM and its foundational documents, I changed more and more of the original text. At this point, a forensic literary analyst would be hard pressed to find the snippets of the original text that remain scattered about this text. I appreciate comments on an earlier draft of this essay by Bill Lipe, Jerry Rogers, and Don Fowler, which were very helpful in adding details and editing, although none of them is responsible for my use of their comments.

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2 From an honor roll to a planning process

Jerry L. Rogers

In reviewing 40 years of Cultural Resource Management (CRM) I will cover a deeper background and suggest how what we now call CRM began to evolve from an adolescent nation's need to honor its heroes into a planning process. CRM tries hard to be a rational system that prevents the unconsidered destruction of cultural resources and that leads to reasoned decisions for treatments of these resources that are in the public interest. It sometimes involves strategic thinking and the deliberate shaping of its own future, and all of those together make it a planning process. I find it interesting, and actually kind of wonderful, that its roots lie in something as vague as cultural mythology and something as *ad hoc* as response to unanticipated problems. Although I greatly admire rational thinking and have long championed the deliberate creation of CRM's future, I believe that cultural mythology sustains the process today.

The birth, youth, and adolescence of the United States coincided with the romantic era when older European nations defined themselves through stories from centuries past. To catch up, the brand new country drew national heroes from the Revolutionary War and the creation of the Union (Hosmer 1965). As the nineteenth century unfolded, a small number of great men came to be not just respected but actually venerated. The significance of Independence Hall was recognized fairly early, as were various buildings that George Washington had occupied, and they began to be seen as special places that ought to be preserved. People visited them less with a desire to learn than a desire to absorb something through association. Seeing where Washington had slept or touching a brick that he might have touched was an experience more nearly spiritual than intellectual.

The horrors of the Civil War, the great number of Americans who had participated, the myriad places where they had shed blood, and the eloquence of Lincoln developed and spread the concept of "hallowed ground" (Sellars 2005). Heroes of the Alamo, Custer, and all those guys only added to the trend.

By century's end the country was not yet inscribing a roll but it was deeply engaged in honoring a handful of extraordinary places and in maintaining a national mythology based on heroes imagined to have been fearless,

incorruptible, and larger than life. Seldom portrayed as humans who might be understood in normal ways, these heroes were secular saints to be venerated. The places associated with them were called historic shrines. Honor was the whole idea. Planning had nothing to do with it.

Meanwhile, the rapid expansion of the United States into its new western lands produced a related phenomenon, also with a boost from the conventions of the era. Explorers discovered new "wonders" like Yosemite, Yellowstone, and the Grand Canyon, as well as "mysteries" like Chaco, Mesa Verde, and Casa Grande Ruins (e.g., Clemenson 1992; Fowler 1995). Mountain men told tall tales of places where "peetrified" trees held "peetrified" birds singing "peetrified" songs. Artists and journalists accompanying the explorers were almost equally exuberant, portraying the West in terms both wondrous and mysterious. A few places began to be set aside for preservation but only a few and only the most outstanding. If not exactly an "honor" roll, it was certainly a small and exclusive group. The Antiquities Act of 1906 added a degree of purpose and discipline to the process (see articles in Harmon et al. 2006; Lee 1970; Rothman 1989).

The National Park Service was created in 1916 to manage most of the natural wonders and some of the historic places that had been designated for preservation by the United States. In 1933, President Franklin Roosevelt transferred most of the other federally owned historic places to the Service (Albright and Cahn 1985). Two years later the Historic Sites Act authorized the National Park Service to bring additional historic places under its mantle and to designate other public and private properties as National Historic Landmarks. Only a few landmarks were designated before a serious program began in the 1950s. All of these, however, were judged to be nationally significant and the entire list of historic places in the National Park System plus National Historic Landmarks numbered only a few hundred. The use of theme studies to identify new parks and landmarks made the process less random and more rational but the list was still small and elite and still an honor roll.

World War II changed everything. For two decades afterward the United States went on a development binge beyond anything before (see United States Conference of Mayors 1966). Most of it was wholly or partially paid for with federal dollars or conducted with federal licenses or permits. Movers and shakers in states, cities, and counties all over the country suddenly had new power to carry out projects they had dreamed of for decades. Everywhere one looked federally funded, licensed, or permitted projects were destroying old urban neighborhoods; taking parks, wetlands, and archaeological sites for interstate highways; building dams and reservoirs; dredging rivers and harbors; laying pipelines; and performing other works of grand scale. These projects were run with a "can do" attitude that had characterized the war effort, and by managers who were proud of how much they could do and how quickly they could do it, but war had been a messy and destructive business and so were many of these projects. Where project

sponsors saw "progress," others who valued the places being destroyed saw a "federal bulldozer," and asked Congress for some means of defense.

The response was the National Historic Preservation Act of 1966. There would be a "National Register of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture." It would include the honor roll of cultural properties in the National Park System and the National Historic Landmark list and states would help expand it to include other places. Federal agencies, before officially approving their undertakings, were to consult the National Register and if their undertakings affected listed properties were to allow the Advisory Council on Historic Preservation opportunity to comment. Other important laws of the period, such as the Department of Transportation Act and the National Environmental Policy Act, made references to historic places and planning, but the Historic Preservation Act only mentioned the development of state historic preservation plans that seemed focused on the use of preservation grant funds. National Register criteria and the Council's opportunity to comment would become the seeds of a planning process.

It is safe to say that no member of Congress who voted for the Act envisioned today's National Register with more than 90,000 listings that encompass 1.7 million contributing resources and that influences the consideration of countless other places through what we now call CRM (Utley 2006, 2014). More likely they would have been alarmed by this scale. Their votes reflected the honor roll attitude that had grown up around national heroes, hallowed ground, and ancient mysteries.

In the sixties the concept of ecosystem – the interdependence of popular species like moose, bison, or giant sequoias with less charismatic and smaller animals and plants – was ascendant in the natural resource fields. Saving the great ones required saving the lesser ones (e.g., Sellars 1997). By 1969 a few of us began to use a term "The New Preservation" (Utley 2006; Glass 1990) to describe a similar interrelationship between the great places of the "honor roll" and the expanded National Register as the cultural counterpart of ecosystem. To understand the great places one needed to understand the more numerous parts of the cultural environment. That notion strongly implied the need for a planning process.

The new Advisory Council on Historic Preservation, the National Park Service, and the nascent State Historic Preservation Officer network labored under great pressure with little guidance. Powerful federal agencies, focused on getting things done and accustomed to having their way, were shocked to discover their new obligations to take the National Register into account and to allow the Council to comment. Years of planning and millions of dollars may already have been invested in a project that would destroy a National Historic Landmark, but before final approval the agencies now had to deal with the Council. States began to nominate places to the Register, giving priority to places threatened by federal projects. Projects already under construction were

sometimes stopped in their tracks for weeks or months, and costly penalties were paid to contractors for not working. Although these situations were reasonable results of the Act, when they actually arose they came by surprise and their resolutions were improvised.

Advisory Council Executive Director Robert Garvey, deluged with more requests for comment than he could handle, chose his battles with care, giving priority to cases that would increase the Council's prestige and effectiveness. He and an assistant were the entire Council staff, and case presentations were made to the Council by National Register staff, including yours truly. Garvey's boldness was admirable, but a situation that repeatedly pitted the historic preservation David against the federal bulldozer Goliath was a formula for political suicide. Sooner or later Goliath would win.

Garvey, Ernest Connally, William Murtagh, and other preservation leaders sought help from Council on Environmental Quality Chair Russell Train and Environmental Protection Agency Director William Reilly who arranged for President Richard Nixon to issue Executive Order 11593 "Protection and Enhancement of the Cultural Environment" in May, 1971. The Order, later enacted into law, directed Federal agencies to know in advance whether places meeting National Register criteria would be affected by their undertakings.

Leadership in making this work was clearly to come from the National Park Service and the Advisory Council on Historic Preservation. The Executive Order's requirement for agencies to develop procedures in consultation with the Council, and for the Service to develop procedures in consultation with the agencies made a planning process the almost inevitable result. The stage was set for the activities of 1974 and the ensuing years that we now recognize as setting the foundation for the development of CRM (see McManamon, this volume).

In the decades since then, with substantial leadership from the archaeological profession, CRM has come to rely on systems and information to make decisions in the public interest. We can be thankful that it has become a planning system and it functions perhaps as rationally as large human systems are likely to function, especially in the political environment within which it now must work. In today's national discourse and in the Congress that is shaped by it, the older, more emotional, and less rational forces that predated CRM still provide vital support. It may seem routine nowadays for a road project or a suburban development indirectly dependent upon a federal permit to pay for a CRM project whose value might not be obvious to the uninformed. But every time that happens something is owed to the mysteries of Chaco, the hallowed ground of Gettysburg, the ghost of George Washington, and even to the wonders of Yosemite and Yellowstone. Honoring the past risks becoming mere propaganda and today we try to make it about learning rather than honor, but we should not lose touch with the cultural mythology – the honor roll – from which CRM sprang and from which it still draws strength.

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3 Glen Canyon, Dolores, and Animas-La Plata

Big projects and big changes in public archaeology

William D. Lipe

In this chapter, I attempt to characterize the structural changes in the practice of public archaeology that took place as a reactive "salvage" approach gave way to a more proactive "cultural resource management" (CRM). I note the cultural, disciplinary, social, and statutory/regulatory contexts that affected the development of CRM, as well as how CRM has affected the discipline of American archaeology. A well-accepted marker of this shift is the 1974 Denver Cultural Resource Management Conference (Lipe and Lindsay 1974) which ensconced "CRM" in the vocabulary of American archaeologists and federal agency managers.

To assess what changed and when, I compare selected characteristics of three very large Bureau of Reclamation (BRec) reservoir projects in the American Southwest (Table 3.1)[1]. The Glen Canyon Project (GCP) (1957–63) took place late in the salvage era; the Dolores Project (DAP) (1978–85) embodied many aspects of the emerging CRM paradigm but retained aspects of salvage; and the Animas-La Plata Project (ALP) (2002–10) was a product of early twenty-first century CRM[2]. I analyze the legal, societal, and professional/disciplinary changes that took place in the years between these three projects and that affected how they were done. All three projects made significant substantive contributions to archaeological knowledge, but I don't try to review or summarize their results.

The Glen Canyon Project (1957–63)

During the late 1950s and early 1960s, the Upper Colorado River Basin Archaeological Salvage Project undertook surveys and excavations in several areas that would be impacted by reservoirs constructed by the BRec. Geographically, the GCP was the largest of these projects (Figure 3.1); it focused on the archaeological sites to be lost by the formation of Lake Powell behind the Glen Canyon Dam (Fowler 2011, 2014). When the GCP began, the only applicable federal laws were the 1906 Antiquities Act and the 1935 Historic Sites Act. These expressed a general federal responsibility for archaeology, but did not address how to put this into practice on federal construction projects, or how to pay for archaeological salvage. However,

Table 3.1 Comparisons of the characteristics of the three projects

Characteristic	*Glen Canyon Project (1957–63)*	*Dolores Archaeological Project (1978–85)*	*Animas-La Plata Archaeological Project (2002–10)*
Geographic scope	Regional, including areas well outside the reservoir	Reservoir and buffer zone	Reservoir, borrow areas, and buffer zone
Reservoir size	186 miles long; area 254 mi^2	10 mi. on Dolores R., plus tributaries; area 4470 acres (7 mi^2)	Reservoir 1500 acres (2.3 mi^2), plus borrow areas
Project area scope	Glen Canyon basin; 14,400 mi^2	16,000 acres (25 mi^2)	6,000 acres (9.4 mi^2)
Sites recorded	"over 2000" (Jennings 1966:43)	933 within project take line	About 242
Number of sites excavated	>100	101	78
Site sizes & density	Small sites, low density	Some very large; high density	Some very large; high density
Periods represented	Archaic, Basketmaker II, Pueblo II-III; historic	Predominantly BM III and P I; traces of other periods	Mainly P I; some Archaic, BM II, and historic
Agency responsible	Bureau of Reclamation, delegated to National Park Service	Bureau of Reclamation, plus BLM and U.S.F.S. collaboration	Bureau of Reclamation
Contracting organizations	University of Utah and Museum of Northern Arizona	University of Colorado; main subcontract with Washington State University	Ute Mountain Ute Tribe, subcontracted to SWCA
Cost in 2015 dollars	Est. $4,529, 000 to $5,727,000	Est. $27,183,000	Est. $19,111,000
Native American involvement	None	None	Much
Theoretical orientation	Culture history; culture ecology	1970s processual	"Processual plus"
Research designs	General questions; detailed operations manual	Detailed research designs for fieldwork and lab analysis	Detailed research designs for fieldwork and lab analysis
Prior survey	Minimal; survey completed after start of excavations	Partial; survey completed after start of excavations	Complete prior to start of excavations
Remote sensing	Not used	Some use	Extensive use
Field & lab recording protocols	Standardized, but low detail	Detailed; multiple forms for fieldwork	Detailed in field and lab

Artifact analysis	Basic descriptive categories	Typological and some attribute analysis	Typological and attribute analysis
Computer use	None	Extensive	Extensive
Biological and geological materials	Coarse-grained analysis of some plant and animal remains	Systematic analysis of biological and geological materials	Systematic analysis of biological and geological materials
Multidisciplinary studies	Alluvial geology; regional botanical survey; S. Paiute ethnohistory	Extensive local and regional environmental studies	Alluvial geomorphology, regional botanical survey, tribal resource surveys
Dating	Pottery cross-dating; no C-14; minimal dendrochronology	Dendrochronology, archaeomagnetism, C-14	Dendrochronology, C-14, archaeomagnetism
GIS	Not used	Not used	Extensively used
Statistical methods	Not used	Descriptive statistics; probabilistic sampling	Descriptive and inferential statistics
Human remains	Few encountered; standard descriptive analysis	Uncommon; descriptive and bioarchaeological analysis	279 individuals; intensive bioarchaeological analysis
Historical archaeology	Survey and documentary study by historians; no archaeology	Documentary research; some survey; no excavations	Historical archaeology an important project component
Records management	Paper records only; standardized forms	Paper records; extensive computer databases	Paper records; extensive computer database tied to GIS
Field and lab personnel	Mostly students; MNA had Navajo crews in some areas	Students and CRM techs	Mostly CRM techs and tribal members
Published reports	Descriptive reports; several topical reports	17 large reports: excavations, artifacts, environmental studies	16 large reports: excavations, artifacts, environment, cultural affiliation, bioarchaeology
Curation of records and collections	Museum of Nat. History of Utah; Museum of N. Arizona	Anasazi Heritage Center	Anasazi Heritage Center
Public education	Films; general summary report	Anasazi Heritage Center exhibits	Some publicity via media coverage
Women on staff	None in field; lab staff primarily female	Women in supervisory and crew positions in field and lab	Women in supervisory and crew positions in field and lab

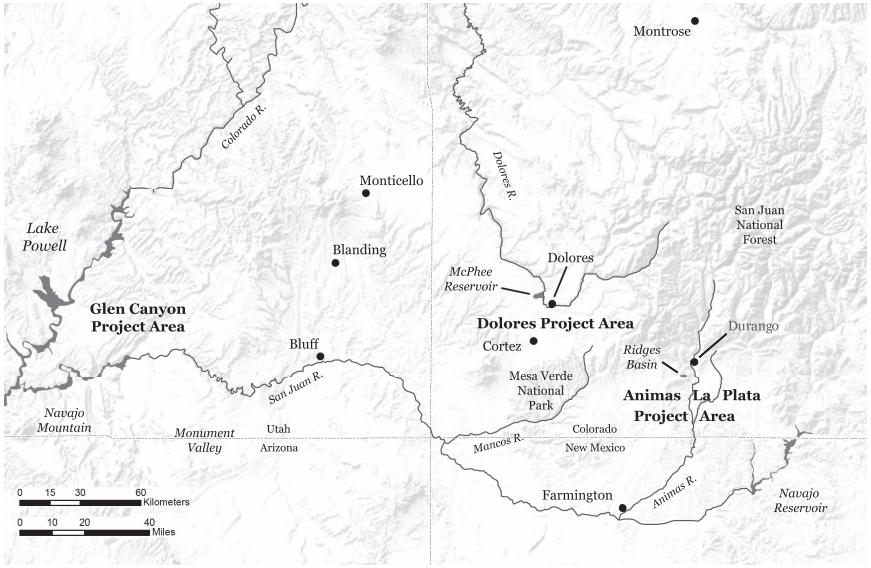

Figure 3.1 Map of the Four Corners area showing the locations of the Glen Canyon, Dolores, and Animas-La Plata archaeological projects

Source: Prepared by Colin Christiansen, Washington State University

in the 1940s, the Smithsonian Institution's River Basin Surveys (RBS) and the National Park Service's (NPS) Interagency Archaeological Salvage Program (IASP) provided for varying levels of salvage archaeology for federally funded projects, especially those that involved reservoirs and waterways (e.g., see Banks and Czaplicki 2014). In 1960, this approach was formalized by passage of the Reservoir Salvage Act. Archaeologists were sometimes directly employed by the RBS, but the IASP often negotiated contracts with universities, museums, or state archaeological or historical societies. Private-sector archaeological consulting firms were a thing of the future.

Fowler (2011) describes the complications surrounding the initial funding of the GCP, but enough of these problems were resolved to get the first crews into the field in the summer of 1957. The majority of the Glen Canyon work was contracted to the University of Utah (UUT), with a smaller share to the Museum of Northern Arizona (MNA). The IASP funding was supplemented by National Science Foundation and Wenner-Gren Foundation grants to the UUT for several field projects designed to explore the regional context of the reservoir area archaeology. The GCP fieldwork began in 1957 and was largely completed in 1962, with report writing continuing into early 1964 (Jennings 1966: 4).

Between 1957 and 1969, numerous monographic reports of project results were published by the UUT and the MNA. Jennings (1966) published a summary report of the entire project oriented to the general public as well as to archaeologists. Fowler (2011: 242–326) devotes several chapters to the GCP and Lipe (2012) reviews the theoretical and methodological orientations of the UUT part of the GCP.

The GCP took in by far the largest area of the three projects discussed here. Damming the Colorado River at Page, Arizona, created Lake Powell, which stretches 186 miles upstream on the Colorado and nearly 50 miles up the San Juan River arm. The UUT and MNA teams were given great latitude, and in fact were encouraged by their NPS project manager (Jennings 1959a: 5–6) to investigate sites not directly impacted by the reservoir. The assumptions were that a proper understanding of the sites to be lost required a better understanding of the regional culture history, and that in any case the remote Glen Canyon area would be significantly affected by the future surge of population and economic development that Lake Powell would bring. The entire Glen Canyon Basin of nearly 15,000 square miles was considered the region of interest (Jennings 1966: Fig. 1), and some fieldwork (with NSF grant support) took place as far away as the Virgin River drainage near the Utah-Nevada border (Aikens 1965).

The reservoir area and its immediate surroundings receive low levels of precipitation, so sites left by farmers were typically small, scattered, and without long occupations. Archaic period sites were also present, but rare, and often were not sufficiently recognized by the UUT crews (Geib 2006; Lipe 2012). The higher elevation DAP and ALP reservoir areas included much larger Formative era sites.

"Culture history" (Trigger 2006) was the predominant theoretical and methodological stance current in American archaeology at the beginning of the GCP. Artifacts were classified into types and complexes of types were used to define archaeological phases or "cultures" that occupied particular places in time and space. Superimposed on the diversity of local cultural chronologies were very general and widespread cultural stages such as Lithic, Archaic, and Formative (Willey and Phillips 1958). In the northern Southwest, the "Pecos Conference" periods (Basketmaker [BM] II and III; Pueblo [P] I-V) structured GCP discussions of chronology. Also employed was a general concept of cultural ecology, using environmental factors to account for the low site density and often transient character of occupation in the Glen Canyon area (Jennings 1966: 62–66).

Neither the UUT nor the MNA branches of the GCP drew up what would be recognized today as research designs, i.e., a characterization of explicit research questions with specific plans for obtaining data relevant to those questions. The questions that were raised in GCP publications were generally about apparent gaps in the occupational chronology or about relationships among large-scale cultural taxa (e.g., Kayenta, Mesa Verde, and Fremont). Expectations were that project excavations would sample (though not in a

formal sense) the archaeological diversity that was present and cultural patterns would be identified when the archaeological evidence was considered. As head of the UUT GCP, Jennings emphasized that "descriptive" reporting was the primary responsibility of a salvage project. Such reports could then form the basis for unspecified synthetic and interpretive studies, presumably to be done after project funding had ended (Jennings 1959a; Lipe 2012). In order to promote consistency in data gathering and reporting, a detailed "operational manual" was prepared for the UUT work (Jennings 1959b)

Although some survey had been done prior to the start of the GCP, primarily along the Colorado River proper, many of the tributaries, including the lower San Juan, had received little survey. Consequently, survey was concurrent with the excavations during the first years of the GCP. In addition to the areas that would be covered by the reservoir, surveys and excavations were frequently extended to the upper parts of tributary canyons, and in a few instances to highlands thought relevant to understanding the sites that were to be flooded (e.g., MNA work in the Navajo Mountain area [Lindsay et al. 1968]). No attempt was made to obtain detailed survey coverage of the huge Glen Canyon Basin. Instead, survey that was well outside the reservoir area proper either consisted of rapid, low-intensity reconnaissance, or focused on specific areas expected to provide context for what would be lost when Lake Powell filled.

The historical archaeology of the reservoir area was investigated with field survey and documentary research conducted by professional historians (e.g., Crampton 1960, 1962, 1964). No historical sites were excavated. The post-Pueblo Native American occupation was addressed only by a study of Southern Paiute ethnohistory carried out by Catherine Sweeney under the direction of Robert Euler (Sweeney and Euler 1963; Euler 1966). There was no comparable study of the early Ute or Navajo occupation. To my knowledge, no formal input was sought from tribes regarding the design and conduct of the GCP.

During the salvage era, it was sometimes assumed that federal funding would only cover fieldwork and that analysis and reporting would be done by researchers employed by the universities and museums that had been contracted to do the fieldwork. Perhaps because of its scale and multi-year extent (and Jennings' insistence), the GCP contracts provided funds for laboratory work and reporting. Also covered was preparation of collections and records for permanent curation. Currently, they are maintained by the Museum of Natural History of Utah and the MNA.

Most of the UUT field and lab crew members were students, many of whom went on to obtain advanced degrees. The MNA employed students and also Navajo crews for the Navajo Mountain area fieldwork. The 1950s were probably the low point for American women hoping to develop archaeological careers, at least if those plans involved excavation. The standard of "guys in the field, girls in the lab" was applied throughout the GCP. Knudson (2014) has a detailed account of women's roles in the River Basin Surveys.

What changed between 1957 and 1978?

The 21 years between the start of the GCP (1957) and DAP (1978) saw a number of new laws and regulations that provided legal underpinning for the emergence of CRM (Table 3.2). These changes were in turn fostered by large-scale sociocultural shifts that affected many aspects of American society. Concurrently, the field of archaeology was being transformed by a more anthropologically and scientifically ambitious "new" or "processual" archaeology.

Table 3.2 Major changes between the start of the Glen Canyon Project (1957) and the Dolores Archaeological Project (1978)

Categories of Change	*Specific Actions (1957–1978)*
Federal laws, regulations, and agency actions	Reservoir Salvage Act (1960)
	National Historic Preservation Act (1966)
	Department of Transportation Act, Section 4(f) (1966)
	National Environmental Policy Act (1969)
	Executive Order 11593 (1971)
	36 CFR Part 800 (Section 106 regulations) promulgated (1974)
	Archaeological and Historic Preservation Act (1974)
	Development of individual agency CRM programs, elaboration of agency contracting protocols
	American Indian Religious Freedom Act (1978)
Advocacy movements and social/cultural trends	The environmental movement, e.g., Sierra Club leads fight against Grand Canyon dams
	The civil rights movement and increased Native American advocacy, e.g., American Indian Movement (AIM, 1968) and Native American Rights Fund (NARF, 1970)
	The feminist movement, e.g., National Organization for Women (1966)
	The historic preservation movement, e.g., the National Trust for Historic Preservation develops more active advocacy
Professional and disciplinary developments	"New Archaeology" intellectual movement within the profession, aka, "Processual Archaeology" (1960s and 1970s)
	Society for Historical Archaeology founded (1967)
	Denver CRM Conference (1974)
	Airlie House Seminars on The Management of Archaeological Resources (1974, published 1977)
	Society of Professional Archaeologists (SOPA) founded (1976)
	Private-sector consulting firms begin to appear
	Archaeology graduate training programs grow at universities

Important legislative changes include the National Historic Preservation Act (NHPA) of 1966 and the National Environmental Policy Act (NEPA) of 1969. In 1971, President Richard Nixon's Executive Order 11593 established a federal responsibility for sites that were deemed *eligible* for the National Register (not only for those already listed on it). This paved the way for the promulgation in 1974 of Section 106 regulations that helped turn the NHPA into a planning as well as a commemorative tool (see Chapters 1 and 2, this volume).

In 1966, Section 4(f) of the Dept. of Transportation Act expanded protection for historic (including archaeological) sites affected by highway construction. And in 1974, the Archaeological and Historic Preservation Act (AHPA) expanded the Reservoir Salvage Act to make it clear that federal agencies must provide for the preservation of archaeological data that might be destroyed as a result of any of their activities, and that they could use project funds to do so. By the time of the 1974 Denver CRM Conference, federal agencies were beginning to hire their own archaeologists and to manage their own compliance contracting, instead of transferring funds and responsibility to IASP.

The 1960s and 1970s saw a number of changes in American society. This ferment promoted the rise of advocacy groups, which in turn promoted further change. A newly active environmental movement was given impetus by Rachel Carson's 1962 book *Silent Spring*. In addition to NEPA, Congress passed the Clean Air and Clean Water Acts (1963 and 1972) and in 1970 established the Environmental Protection Agency. The Sierra Club became a major environmental advocacy organization. The Glen Canyon was presented as an exemplar of lost wilderness through Elliot Porter's Sierra Club book *The Place No One Knew* (1963), followed by Francois Leydet's *Time and the River Flowing* (1964), which dramatized the Club's ultimately successful goal of keeping the Grand Canyon un-dammed.

In the 1950s, the civil rights movement mounted multiple challenges to prevailing "Jim Crow" laws, leading to dramatic and often bloody confrontations. This finally led to passage of the 1964 Civil Rights Act, which prohibited discrimination based on race, color, sex, religion, or national origin. The civil rights movement also provided a context for the growth of Native American advocacy. Vine Deloria's book, *Custer Died for Your Sins: An Indian Manifesto* (1969), raised public consciousness about Native American concerns. The American Indian Movement (AIM) was established as an action-oriented advocacy group in 1968, and the Native American Rights Fund (NARF) was organized in 1970 to promote legal remedies. By 1978, the American Indian Religious Freedom Act had been passed to secure Native American access to sacred sites, use of traditional paraphernalia, and freedom from interference with religious ceremonies.

The feminist movement was revitalized in the 1960s by (among other things) publication of Betty Friedan's book *The Feminine Mystique* (1963), and the formation of the National Organization of Women (NOW) in 1966.

Fighting against gender-based employment discrimination became a major focus. This played out in American archaeology as field crews increasingly included women as well as men, and more women took on supervisory positions on field projects. Academic employment is notoriously slow to change, but by the late 1970s, the number of women employed as faculty members had begun to increase.

The interstate highway system was authorized in 1956, and construction ramped up in the 1960s and 1970s. Numerous battles were sparked by construction that destroyed or threatened to destroy historic buildings or districts. In 1965, a committee of the U.S. Conference of Mayors reviewed the loss of historic properties and proposed new legislation. Their report, published in early 1966 as *With Heritage So Rich* (U.S. Conference of Mayors 1966), helped rally public support for passage of the NHPA later that year. Increases in dam-building and other major federal infrastructure projects that affected both historic and archaeological sites also led to amendment of the 1960 Reservoir Salvage Act, broadening its applicability to other kinds of projects that impacted archaeological resources. Enacted in 1974, the law was variously referred to as the Archeological and Historic Preservation Act (AHPA), the Moss-Bennett bill, and the Archeological Recovery Act (McManamon 2000).

Dramatic changes also took place in the 1960s and 1970s in the goals and practice of American archaeology, under the influence of Lewis Binford and other "new archaeologists" (e.g., Binford 1962, 1964; Binford and Binford 1968; Watson et al. 1971). Previous emphases on culture history and archaeological taxonomies were replaced or supplemented by a more explicitly theoretical archaeology oriented to understanding past sociocultural systems and the processes responsible for their operation and change (hence the eventual label, "processual" archaeology). Favored research topics included demography, social organization, and adaptation of sociocultural systems to both natural and social environments. Also favored were detailed research designs; use of sampling theory and both descriptive and inferential statistics; more attention to environmental archaeology; applications of experimental approaches; increased use of ethnographic evidence; and, multidisciplinary collaborations. Historical archaeology gained a stronger voice and following during this period with the founding of the Society for Historical Archaeology (1967) and agreement that archaeologists working with historic period sites needed training in both history and historical archaeology.

Concern about the increasing pace of archaeological site destruction was forcefully expressed by Hester Davis (1972) in a widely read article "The Crisis in American Archaeology" published in the journal *Science*. C.R. McGimsey's 1972 book *Public Archeology* argued that archaeologists must gain public support for responding to this crisis. My "Conservation Model" article (Lipe 1974) gained attention by treating archaeological remains as non-renewable resources to be managed for broadly construed public as

well as scholarly values. These and other articles, in combination with the new laws, set the stage for the emergence of a more proactive, resource-management response to federal projects that threatened archaeological sites. The year 1974 was the tipping point for the replacement of the "salvage" approach with one based on "CRM".

Survey archaeology came into its own in the 1970s as a major source of information for some of the goals of processual archaeology, including settlement and community patterns, and regional demographic reconstructions. Greater emphasis on survey was also compatible with the emergence of CRM, which emphasized initial assessment of sites in proposed project areas so they could be avoided rather than excavated.

Also in 1974, the Airlie House Seminars (McGimsey and Davis (1977) grappled with a growing awareness of the implications of CRM for the professional practice of archaeology. The seminars focused on six topics that exemplified the opportunities and challenges of the new world of CRM (McManamon 2014: 236–238). One of these was certification, which C. R. McGimsey (Society for American Archaeology [SAA] president at the time) argued was essential if archaeologists working outside academia were to be accepted by government and the private sector as true professionals. In 1976, when the SAA failed to establish a certification program, McGimsey convened a committee that formed the Society of Professional Archeologists (SOPA) to do the job. SOPA promulgated an ethical code and standards for research performance; a grievance process was set up to adjudicate complaints about a member's failure to adhere to the code or the standards. (In 1998, SOPA was transformed into the Register of Professional Archaeologists).

The increased pace of legally mandated non-academic archaeology provided openings for private CRM consulting firms and the beginnings of a shift away from universities as the primary recipients of federal contracts. New job opportunities in CRM began to be reflected in graduate enrollments, especially at the MA level, and the SAA began to pay more attention to government affairs and public education.

The Dolores Archaeological Project, 1978 to 1985

The "DAP" remains one of the largest federally funded archaeological projects ever carried out in the United States. It was formally a "program" but is generally referred to as a "project". Although damming the Dolores River downstream from the town of Dolores, Colorado created a relatively small reservoir (Lake McPhee), there was a heavy concentration of sites (including some very large ones) especially for the BM III and P I periods (ca. AD 500 to 900). Fieldwork was from 1978 to 1983, with analysis and reporting completed in 1985. Thirteen volumes, some with several parts, were published and widely distributed by the BRec. In addition to the final synthetic report (Breternitz et al. 1986), there are overall assessments of the project by Breternitz (1993) and Lipe (2000). In 2012, a collaborative project among

researchers at Washington State University, the Center for Digital Antiquity, and the BRec made it possible for the 20 final synthetic reports and 21 analytical datasets of the DAP to be uploaded to tDAR (the Digital Archaeological Record) where they can be easily accessed for current and future use of the data and documents.[3]

The University of Colorado (CU) was the principal contractor for the project, with David Breternitz as the senior Principal Investigator. The primary subcontractor was Washington State University (WSU), with William Lipe and Timothy Kohler of that institution, and Allen Kane, field director for CU, serving as DAP co-PIs. Several other smaller subcontracts were active during parts of the DAP. Robinson et al. (1986) describe the project's organization and its cultural resource base.

The extensive "canals and laterals" system that delivered Dolores water to outlying areas was treated as a separate CRM mitigation project by the BRec under its Four Corners Archeological Program (Hurley 2000). The DAP cost figures in Table 3.1 refer only to the work in the reservoir area done by CU and its subcontractors.

Like the GCP, the DAP did not obtain input from Native American tribes or their participation in the work. There was evidence of a light Native American occupation in the general DAP area in post P III times. The Beaver Point Phase (AD 1500–1800) and a Protohistoric Phase (AD 1750–1870) were defined largely on the basis of surface finds of probable Numic Brownware sherds and P IV period Pueblo trade sherds, plus the presence of Euroamerican trade goods with two burials (Kane 1986b: 398–402).

Unlike the GCP, the DAP contract was managed by BRec archaeologists. Ward Weakly, Senior Bureau Archaeologist and then Bureau Preservation Officer, played an important role in initiating and overseeing the project; the DAP final report is dedicated to him. BRec regional archaeologists were also involved, and a project archaeologist was based in Cortez throughout.

Only a partial survey of the reservoir pool and "take line" buffer zone had been done when the DAP contract was let and excavations began in 1978, so survey continued concurrent with excavations for several years. Ultimately, 933 sites were recorded – 205 in the pool area and the rest in the buffer zone (Orcutt and Goulding 1986). In addition, a sample of quadrats was surveyed in several localities to provide information on settlement in the uplands surrounding the Dolores Valley (Schlanger and Harden 1986; Schlanger 1986).

Because survey coverage was so incomplete at the start of the DAP, it did not become clear until 1979 that the DAP was going to be a very large archaeological project in a relatively small reservoir. The 1974 AHPA limited funds for archaeological mitigation projects to 1 percent of the overall cost of a federal project. A bill creating an exception for the DAP was introduced by Colorado Congressman Ray Kogovsek in October, 1979, and it was passed as P.L. 96–301 in July, 1980. A mechanism for accommodating exceptional archaeological costs was then made part of the 1980 amendments to the NHPA.

The DAP differed from the GCP in that it devoted considerable effort to writing and implementing a detailed mitigation design (Kane 1986a). This consisted of a general research design and a set of implementation designs (Kane et al. 1983; Kane et al. 1986; Knudson et al. 1986). The general design, in tune with the processual archaeology of the late 1970s, addressed five problem domains: economy and adaptation; paleodemography; social organization; extra-regional relationships; and cultural process. The implementation design proposed methods and measures for obtaining an adequate sample of data to be used in addressing the general research questions. Because the sites within the take line varied from small limited activity sites to villages that once housed several hundred people, the concept of "Full Site Equivalent" (FSE) was used to allocate fieldwork effort (Robinson et al. 1986: 44–45; Breternitz 1993). Each FSE represented the approximate labor invested by a ten-person field crew for a 40-hour week.[4]

By the end of the last (1983) field season, excavations ranging from complete to minimal had been conducted at 101 sites, most within the pool area. The sites within the pool area represented an estimated total of 4,582 FSE's, of which only 8 percent were actually excavated (Robinson et al. 1986). If number of sites rather than of FSE's were used to characterize the mitigation effort, then approximately a third of the sites received some level of excavation (Breternitz 1993).

From the outset, the DAP was designed to create computer databases for all aspects of the project. Data were collected on detailed coding forms in both the field and lab; large batches of punch cards were regularly sent to Denver for entry in the BRec mainframe computer. The DAP database is maintained at the Anasazi Heritage Center (AHC) and continues to be available to researchers and agency resource managers (Wilshusen et al. 1999).

In 1980, the BRec mandated a synthetic report of the results so far in order to plan for completion of the project. The question was "How much is enough?" (Breternitz 1993). This report was completed in 1981 (Breternitz 1984). One of the BRec decisions resulting from this assessment was to cancel the historic archaeology program, which for various reasons had only begun to be implemented (Bloom 1984; Breternitz 1993). A team from the HABS-HAER program of the NPS ultimately produced a monograph that synthesized documentary and oral history and produced drawings of some of the major standing buildings in the pool area (Kendrick 1982).

By the time the DAP began, the long-time resistance in Southwestern archaeology to hiring women for fieldwork had begun to crumble. Women had roles as crew members, crew chiefs, and assistant crew chiefs, and both men and women worked in the project laboratory. However, in a cumulative list of the 40 people who had served as excavation or survey crew chiefs during the project, only 13 were women (Robinson et al. 1986: Table 1.3).

The DAP did not produce any films or books oriented to the general public, but P.L. 96–301 authorized funds for building the AHC. This is operated and staffed by the Bureau of Land Management (BLM). In addition to

being a major repository for physical collections and records from the DAP and other federal projects in the area, it has outstanding exhibits and public education programs, some of which are based on the DAP results.

What changed between 1978 and 2002?

The ALP began fieldwork in 2002, 24 years after the start of the DAP in 1978. The first piece of consequential CRM legislation in that period was the 1979 Archaeological Resources Protection Act (ARPA). ARPA strengthened the permit and penalty provisions in the 1906 Antiquities Act (Friedman 1985). Promulgation of ARPA regulations in 1984 and subsequent amendments in 1988 made it effective as a law enforcement tool, and many successful prosecutions of looters have resulted (McManamon 1991). These regulations also gave tribes a voice in the issuance of permits for archaeological research (Table 3.3).

Table 3.3 Major changes between the start of the Dolores Archaeological Project (1978) and the Animas-La Plata Archaeological Project (2002)

Categories of Change	*Specific Actions (1978–2002)*
Federal laws, regulations, and agency actions	Archaeological Resources Protection Act (1979)
	1980 National Historic Preservation Act amendments, Section 110 added; Certified local governments given role under Section 101
	Native American Graves Protection and Repatriation Act (1990); Regulations published (1995 and subsequently)
	1992 National Historic Preservation Act amendments; Section 110 strengthened; Qualified tribal historic preservation programs under Tribal Historical Preservation Officers given responsibilities
Advocacy movements and social/cultural trends	Increased visibility and influence of Native American tribes and interest groups
	National Museum of the American Indian created (2004)
	Increased number of tribal CRM programs
	Archaeological education and participation programs increase
Professional and disciplinary developments	Post-modern and post-processual archaeological theory develops
	Scientific methods proliferate for archaeological analyses
	Geographic Information System (GIS) and Global Positioning System (GPS) technologies become widely used

(*Continued*)

Table 3.3 (Continued)

Categories of Change	*Specific Actions (1978–2002)*
	CRM career tracks develop in consulting firms and federal/state agencies
	CRM contracting increases in private sector, decreases for universities
	Large multidisciplinary consulting firms increase
	CRM, public education, and Native American relationships play larger roles in SAA
	Society of Professional Archaeologists (SOPA) becomes Register of Professional Archaeologists (RPA,1998)
	Large majority of U.S. archaeological data now come from CRM-based investigations and projects
	Initial efforts to make CRM results more accessible, e.g., the National Archeological Database (NADB)

There were significant amendments to the NHPA in 1980, including adding a new Section 110. This made it clear that agencies have affirmative responsibilities for inventorying and managing cultural resources that go beyond conducting Section 106 reviews. The amendments also provided a process by which some activities of the State Historic Preservation Officer (SHPO) could be delegated to certified local governments.

In 1992, another round of NHPA amendments further strengthened Section 110, and also enabled qualified tribal preservation programs to take over many responsibilities for carrying out NHPA mandates on tribal land. The role of Tribal Historic Preservation Officer (THPO) was defined, with responsibilities on tribal lands that parallel those of the SHPO.

By far the most consequential legal development was passage in 1990 of the Native American Graves Protection and Repatriation Act (NAGPRA). This, along with other legislation and the growing societal influence of Native American tribes and interest groups, resulted in large changes in the conduct of CRM. It has made consultation with affiliated or potentially affiliated tribes a regular responsibility for federal agencies, either on a project-by-project basis or through negotiated memoranda of agreement. As a result, Native American human remains and associated funerary objects are usually avoided or not removed for analysis in excavations at sites that will not be destroyed by a development project. For those that will be destroyed, how the human remains and associated items will be treated is something ordinarily negotiated with tribes before the start of excavations.

The period between the DAP and ALP saw continued increases in public appreciation for Native American culture and awareness of the dark history of Native American treatment in the United States. A new National

Museum of the American Indian was authorized in 1989 and opened in 2004 as a highly visible symbol of Native Americans' place in U.S. society. Among other trends were increasingly positive and nuanced portrayals of Native Americans in films and television. Tribes and tribal advocacy organizations also increased their efforts to pursue land claims and treaty rights through the courts, and to achieve legislative goals through lobbying; NARF played a leading role in passage of NAGPRA.

With the start of the "Reagan revolution" in 1980, federal agencies were increasingly encouraged to outsource activities to private-sector firms. Although some private consulting firms had been established in the early 1970s, their number grew dramatically in the period considered here (e.g., Doelle and Phillips 2005). Large environmental consulting firms also began to add cultural resources to their list of specialties. The long-established pattern of contracting with universities and museums increasingly shifted toward the private sector, which generally proved more "nimble" in responding to increasingly specific contract requirements. State universities also wished to avoid the appearance of using tax-supported staffs and facilities to compete with the private sector.

The Archaeological Conservancy was formed in 1979 as a private non-profit organization designed to preserve privately owned archaeological sites by acquiring them by purchase or donation. It now manages over 500 sites in the United States. Qualified archaeologists may apply to do research on Conservancy sites, and in some cases sites may be transferred to suitable governmental or non-profit entities for continued protection.

In the 1980s and 1990s, partly in response to the growth of CRM, there were increased efforts to enable the general public to learn about and become involved in archaeology. "Project Archaeology" was founded by the BLM in the early 1990s to help K-12 educators incorporate archaeological concepts and information in school curricula. The SAA established and staffed a Public Education Committee to promote archaeological public education in numerous ways. State and local amateur societies were already long established, but many increasingly moved to strengthen their educational programs, and to ensure that any excavations they did met basic standards. There was also the emergence of hands-on participatory archaeology programs such as those of the Crow Canyon Center in Colorado, as well as the Forest Service's "Passport in Time". The Earthwatch organization also helped people join field research projects, including archaeological ones.

Changes in the discipline of archaeology between 1978 and 2002 included recognition of CRM employment as fully professional, running parallel to established academic and museum tracks. By the mid-1990s, even the academically-oriented SAA regularly had officers and board members who were employed in CRM. The proportion of U.S. field archaeology that was done in academic versus CRM contexts continued to shift toward the latter, so that by 2002 by far the predominant source of new excavation and survey data was from CRM work. Altschul and Patterson (2010) provide a

review of the trends in training and employment in American archaeology brought about by the growth of CRM activities.

On the theoretical side, "post-modern" approaches to archaeology gained ground in the 1980s, but for the most part U.S. archaeologists – or at least those working in CRM – adopted what Hegmon (2003) has called "processual-plus" approaches (also see Lipe 1999). These adapt some of the concepts promoted by post-modernists, while rejecting their epistemological relativism. On the methodological side, GIS became well-established to manage the spatial aspects of archaeological and environmental data, and computer modeling of complex sociocultural systems began to take off. The use of both established and new analytical methods from the physical, earth, and ecological sciences expanded greatly. Large well-funded CRM projects such as ALP have enabled such methods to "show what they could do."

The Animas-La Plata Archaeological Project, 2002–10

The Animas-La Plata Reclamation project was initially authorized in 1968, but was repeatedly delayed by numerous disputes over its size, cost, and environmental impacts (Potter 2010: 357–369). In 1998, a downsized version was approved in order to satisfy Indian water rights under the 1988 Colorado Ute Indian Water Rights Settlement Act (as amended in 2000). The project will provide water for the Southern Ute and Ute Mountain Ute tribes. Both dam construction and the ALP Archaeological Project started in 2002.

The reservoir (Lake Nighthorse)[5] located in Ridges Basin is a small one, but it and the borrow pits on nearby Blue Mesa impacted a number of sites, including some large ones with numerous human remains. A number of archaeological excavations of variable quality had been done in the project area before the ALP began (Potter 2006). In the 1980s, a high quality survey of the project area was completed (Fuller 1988), providing detailed data used to base site selection for the mitigation phase of the ALP.

Paleoindian, Archaic, BM II, P I and Historic components were represented in the project area. Of these, a large majority were from the P I period, with lesser numbers from the other periods. Of the 242 sites recorded in the impact areas, 78 were selected for data recovery. Fieldwork started in 2002 and ended in 2005. Analysis and report writing were completed in 2010. Sixteen detailed reports were published between 2006 and 2010 (Potter 2006, 2010).

The primary contractor for ALP studies was the Ute Mountain Ute Tribe, which retained the firm SWCA to undertake the archaeological and cultural investigations. James Potter served as principal investigator for SWCA throughout the project. The greatest contrast between the ALP and the other two projects discussed here was an unprecedented level of involvement by Native Americans in every aspect of ALP. Potter (2010: 367–375) briefly describes the consultations that guided determinations of cultural

affiliation, compliance with NAGPRA, and identification of traditional cultural properties. Perry and Potter (2006) describe the extensive cultural affiliation study that was conducted and reproduce the programmatic agreement (PA) governing the conduct of the project. The PA was signed by the Advisory Council, BRec, the BIA, the Colorado and New Mexico SHPOs, the chairmen of the Southern Ute and Ute Mountain Ute tribes, and the Navajo Nation THPO. The ALP provided training and employment opportunities for Native Americans, including students. "At several points, a full third of ALP project employees were Native American, including Ute Tribe members . . ." (Potter 2010: 375).

Separate research designs were developed for prehistoric, protohistoric, and historic resources. The prehistoric research design for ALP exemplifies a "processual plus" scientific orientation (Hegmon 2003). It rejects the assumption often made in 1970s processual archaeology that adaptations to natural and social environments occur at the level of sociocultural systems, with little input from the constituent individuals and social groups. Instead, Potter (2006) sees a multi-level interaction between the goals and actions of individual and group "agents" and the opportunities and constraints offered by the natural environment and the context created by existing social and cultural practices.

The prehistoric research design identified three problem domains, focused on the Archaic, BM II, and P I periods (Potter 2006). Because of the predominance of P I settlement in the ALP area, this period had the most elaborated research topics (Potter 2010). Of the 78 sites that had field investigations, 35 were identified as P I habitations (Potter 2010: Tables 1.2 through 1.5); the bulk of the project effort in the field and lab was devoted to these sites. Three BM II habitations were also excavated, and a number of artifact scatters and limited activity sites were surface collected or excavated. Of the 16 volumes reporting on the ALP, six of the larger ones were devoted to presenting the results of excavations at prehistoric sites (most of them P I). The volumes on lithic and ceramic studies also focused heavily on P I assemblages.

Unlike the two earlier BRec projects discussed here, the ALP devoted considerable effort to historical sites, and two of the final report volumes deal with history and historical archaeology (Gilpin 2007; Gilpin and Yoder 2007). Nine protohistoric Native American sites were investigated, mostly by surface collecting and documentation, but in several cases with some excavation. The Euroamerican historic sites design treated historical archaeology as the study of social history (Potter 2006: 36) and focused on subsistence, demography, ethnicity, and ideology/world view. Data recovery (primarily through surface mapping and collections, but with some excavations) was conducted at eight sites (Gilpin and Yoder 2007). Extensive archival and in some cases oral history research was done for both the protohistoric and historic periods (Gilpin 2007; Gilpin and Bollong 2010).

The ALP also placed much more emphasis on bioarchaeology than did the GCP and DAP. In part, this was because the ALP encountered larger numbers

of human remains. The remains of 279 individuals were recovered from 23 sites; an additional site had a large deposit of fragmentary human remains; and isolated fragments of human bone were not infrequently encountered in excavations (Stodder et al. 2010). Methods of bioarchaeological analysis had also been considerably refined since the 1970s. Furthermore, the field recovery and laboratory studies of human remains were guided by a detailed NAGPRA compliance plan developed with extensive tribal consultations (Stodder et al. 2010). The volume devoted to bioarchaeology (Perry et al. 2010) is the largest (by a few pages) of the 16 in the final report.

Conclusions

All three of the large, multi-year projects summarized here required successfully organizing and supervising a large staff, managing large budgets, fully reporting extensive results in a timely way, and ensuring that records and collections were ready for long-term curation. All made important and lasting substantive contributions to American archaeology, and provided training and experience for many students and young professionals. The three projects span a period that saw fundamental changes in archaeological method and theory and in the technical capacities of archaeology and related disciplines to gain information from the archaeological record.

Changes in federal law and regulations under which these projects were carried out over the years account for major differences in how the three projects were organized and conducted. These changes, and the way archaeologists and federal agencies responded, resulted in the shift from a reactive "salvage" to a more proactive planning-based "CRM" approach to dealing with the impacts of economic development on archaeological sites. The legal mandates that gave rise to CRM have resulted in an enormous expansion of the amount and scale of public archaeology, and created a new category of CRM professionals who are not employed primarily in academia.

Another major structural shift has taken place as NAGPRA and NHPA amendments have required agencies and archaeologists to incorporate Native American views and concerns in the design and conduct of CRM projects. This shift is still a work in progress, but the ALP provides an example of a largely successful attempt that took place relatively early in this process. Archaeology seems increasingly to be playing a proactive rather than strictly reactive, role in the construction of the new relationships required by this structural shift.

Changes in sociocultural attitudes and values, and the ability of advocacy groups to harness these changes to influence the political system, have played key roles in shaping the current legal and regulatory structure of CRM in the United States. Over the years, archaeologists have often had a greater role in this political process than their numbers would seem to warrant, but even so, they usually have been minor players. The overall system will continue to be dynamic, and we can hope that future changes will improve rather than

weaken its ability to do what the label "CRM" implies – to effectively manage cultural resources for the long-term public good.

Notes

1 Costs were estimated as follows: For the GCP, Fowler (2011: 250) cites Jennings' archived correspondence that "for the final four years of the project, Utah had $80,000–90,000, and MNA $30,000–50,000". This would be $110,000 to $140,000 combined per year. I assigned this rate to the 1958 through 1961 work and assumed that half that amount was available for 1962 and 1963. Fowler (2011: 250) also notes that $17,000 was available for 1957. All this adds up to a total project federal expenditure of $567,000 to $717,000, not counting grant funds used in 1961 and 1962. Assuming these are 1960 dollars, the total federal expenditure in 2015 dollars would be $4,528,629 to $5,726,679.

For the DAP, Breternitz (1993: 118) reports that federal funding totaled $9,990,562. Assuming these are 1981 dollars, the 2015 cost would be $27,183,127.

The total cost of CRM component of the ALP was approximately $15,000,000 (James Potter, personal communication, May, 2015). Assuming these are 2004 dollars, the total cost in 2015 would be $19,111,123.

2 I was a crew chief on the GCP 1958–60, and a crew member in the summer of 1961, after I had returned to graduate school. On the DAP, I was a co-principal investigator, responsible for the Washington State University subcontract. I had no role in the ALP.

3 Two of the major reports and a number of unpublished ones can be downloaded from the Anasazi Heritage Center's (AHC) website. All of the major DAP reports and databases are available at The Digital Archaeological Record (tDAR) https://core.tdar.org/collection/27893/dolores-archaeological-program-dap, accessed 27 August 2015. Also see Ellison (2011).

4 The FSE concept was possibly related to the "EU" (Excavation Unit) used by the River Basin Surveys. Instead of quantifying the effort required to excavate a standard site element (as in the FSE), the EU covered the annual cost of an archaeological team of 15 persons, and covered laboratory analysis and reporting as well as fieldwork. Efforts devoted to particular sites could be expressed as fractions or multiples of EUs (Moratto and Riddell 2014; Lyman 2014).

5 The lake is named for former Colorado Senator Ben Nighthorse Campbell, a member of the Northern Cheyenne tribe, and a key figure in gaining Congressional approval of the Animas-La Plata Reclamation Project.

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4 The co-development of CRM and archaeological ethics, 1974 to 2015

Don D. Fowler

Introduction

The principal concerns of those attending the 1974 Denver CRM conference (Lipe and Lindsay 1974; see also McManamon, Chapter 1, this volume) were: first, the implications of a "conservation archaeology ethic", as set forth in Bill Lipe's (1974) seminal article (see also Pastron 1971); second, how to properly "manage" archaeological sites and other "cultural resources" within the requirements of federal legislation, rules and regulations; and third, to further develop appropriate professional standards and codes of ethics within American archaeology (Miller 1974).

The history and practice of archaeology in the United States for the next four decades, from 1974 to 2015, was shaped in large part by how the three concerns were approached and ultimately intermeshed within an operative CRM framework. This article focuses on the ongoing development of standards and codes of ethics in that time frame.

Ethics have been a central ideological concern in Western thought since Classical times. According to Webster's Dictionary (2015), "Ethics [is] the study of standards of conduct and moral judgment . . . the standards that govern the conduct of a person, especially a member of a profession." There is a distinction between "normative ethics" concerned with moral issues, and "applied ethics and ethical relativity" specific to human rights, social implications of scientific research, social equality, and professional practice. Archaeological standards and codes are instances of applied ethics.

Archaeology shares long-held values in Western ideology about noble purposes carried out for the common good. An underlying value is that knowledge-making – the pursuit of more "valid" data and theories about the world, how it operates, and the human situation within it – past and present – is a noble purpose (Moneypenny 1955: 98). New knowledge (publications, archives, databases, etc.) becomes part of the human commons, in theory available to and shared by everyone.

Archaeology necessarily deals with objects and related contextual materials of the human past; these, together with relevant records, are integral parts of the commons knowledge base to be held in trust by public institutions for education and future study. A related assumption is that noble

purposes pursued for the common good should receive societal organizational and financial support, both public and private. But with public support comes scrutiny of how public monies are expended and scrutiny of professional standards (Kitcher 2001; Shapin 1995).

Archaeology is pursued by self-defined professionals. As in other fields of science, the question "do we trust her/his data?" implies expectations of expertise, integrity, intellectual honesty, and accountability. Until about 1960, archaeologists were basically accountable only to each other, and (often unwritten) rules of professional etiquette or "civility" sufficed to define ethical behavior. But once archaeology began to interact with businesses, government agencies, and nongovernmental organizations, written definitions of professionalism and accountability became necessary. The key issues are: who is a professional archaeologist and how can you tell? How is the integrity of the profession and its members to be judged? What are the agreed-upon canons of professional ethical behavior? (Wildesen 1984: 4–5).

Those gathered at the 1974 Denver conference were aware of extant national and international laws, covenants and agreements relating to human rights to cultural heritage. The United Nations' *Universal Declaration of Human Rights* sets forth the right of the individual to fully participate in the cultural life of her or his community, as does the 1970 *Cultural Rights as Human Rights* declaration (UNESCO 1948, 1970). Each individual has a

> right to have authentic testimony of cultural heritage . . . the right to wise and appropriate use of heritage, the right to participate in decisions affecting heritage and the cultural values it embodies; the right to form associations for the protection and promotion of cultural heritage.
>
> (cited in Fowler, Jolie and Salter 2008: 410)

In the United States, members of the Society for American Archaeology (SAA) had been involved intermittently in discussions of standards and ethics since the founding of the Society in 1935 (Thompson 1977: 98–107). The burgeoning development of "salvage archaeology" after World War II (Lipe, Chapter 3, this volume; Banks and Czaplicki 2014) generated ongoing, but informal, discussions of standards and ethics within the National Park Service and Committee for the Recovery of Archaeological Remains. The Committee was an advisory and lobbying group that helped promote and guide federal archaeological salvage programs from ca. 1944 to the 1970s (Wendorf and Thompson 2002).

These various discussions ultimately led to the publication of "Four Statements for Archaeology." The statements define: (1) the "field of archaeology;" (2) acceptable field recording, analysis, curation, and reporting standards; (3) "Ethics for Archaeology," and (4) teaching methods. The Ethics section basically reflects the "Can we trust her/his data" and professional courtesy criteria previously noted: Collections and data must be

made available to other qualified scholars; results must be published "in a recognized scientific medium;" buying and selling artifacts "is censured," and no site-jumping is allowed, i.e. "members of. . . [SAA] do not undertake excavations on any site being studied by someone [else] without the prior knowledge and consent of that person" (Champe et al. 1961: 137).

But the various pieces of federal historic preservation legislation beginning in 1935 and accelerating during the 1960s (Chapters 1–2, this volume; Davis 1972; McGimsey 1972, McGimsey and Davis 1977: Sections 1–3, 6) made it clear by 1970 that most archaeological work would be conducted in the public sphere, hence standards of practice and codes of ethics would be required that far exceeded the 1961 Four Statements. These were among the many issues discussed formally and informally at the 1974 Denver conference and especially in Seminar 6 at the follow-on Airlie House seminars (Thompson 1977: 97–105). Some Denver attendees thought that an "action group" was needed to discuss and debate standards and ethics and the immediate procedural and research issues arising from the requirements of existing and planned federal environmental and historic preservation legislation and rules. Hence, the American Society for Conservation Archaeology (ASCA) came into informal existence the second evening of the Denver conference, sketched on the backs of cocktail napkins at the Tally Ho! Tavern. William Mayer-Oakes (1974) became president *pro-tem* and Don Fowler became editor of the *ASCA Newsletter* and later, also, the *ASCA Proceedings*. The following week Fowler incorporated ASCA as a 501(c)(3) non-profit organization in Nevada. A Standards Committee was appointed, chaired by Kathleen Gilmore. The committee report (Gilmore 1975) was printed in the newsletter and elements therefrom ultimately incorporated into standards subsequently set by SAA and SOPA (see below).

The *ASCA Newsletter* and *Proceedings* and its sponsored symposia at SAA and American Anthropological Association meetings were useful forums from 1974 through 1981 for discussions of archaeological standards and codes of ethics, and how archaeological practice should articulate with and meet the requirements of relevant Federal historic preservation legislation and rules. By 1981 ASCA had served its purpose and was discontinued. ASCA files, newsletters, and proceedings are on deposit in the National Anthropological Archives, Smithsonian Institution.

Another issue discussed in Denver related to the formation of a registry of professional archaeologists to which businesses and governmental agencies could refer. This was pursued by the SAA Executive Committee with advice from various Society members and an attorney. At the 1975 SAA annual business meeting in Dallas, Texas, the Executive Committee presented a proposal to develop a Registry of professional archaeologists, to be ratified by a referendum vote of the membership. The proposal was hotly debated, but passed (SAA 1975: 520–522). An Interim Committee, consisting of SAA Executive board members and Edward Jelks, representing the Society for Historical Archaeology, was appointed to develop incorporation papers and

by-laws for such a registry. At the 1976 SAA meeting in St. Louis, it was announced that a Society of Professional Archaeologists (SOPA) had been incorporated on April 26, 1976 as a legal entity separate from SAA, a board of directors elected and by-laws drawn up. Standards were to be adopted and procedures for determining membership criteria developed (SAA 1976: 587–588). Thus was SOPA launched. Discussions of standards and ethics went forward within the SAA board and general membership as well as within the ASCA forums.

An additional network for discussing ethics and standards and other issues was created in 1977 with the formation of the Coordinating Council of National Archaeological Societies (CCNAS, given the acronym "Coconuts" by Edward Jelks). Council members were the presidents or their designees of the SAA, ASCA, SOPA, the Society for Historic Archaeology, the Archaeological Institute of America, and the Association for Field Archaeology (SAA 1977: 680). The Council facilitated ongoing discussions within its societies' memberships regarding standards and ethics. However, its principal function was lobbying the Congress and federal Executive agencies, especially, for a new Antiquities Act, the Archeological Resources Protection Act (ARPA, 16 U.S. Code 470aa-470mm), which was passed in 1979. (For the history of ARPA, see Friedman, ed. 1985; Fowler and Malinky 2006).

Once launched, SOPA developed standards and a code of ethics which were upgraded periodically (see McGimsey, Lipe and Seifert 1996) and published a directory of members. Grievance procedures were established to deal with purported violations of ethics or standards. Although a step forward, SOPA was not overly successful. At its peak there were about 750 members. A major problem was that it was a stand-alone legal entity and did not have the formal backing of the SAA or other national archaeological societies. In 1994–95 the governing boards of SAA, SOPA, the Archaeological Institute of America (AIA) and the Society for Historical Archaeology (SHA) agreed in principle to be co-sponsors of a Register of Professional Archaeologists; the American Anthropological Association later joined as well (McGimsey, Lipe and Seifert 1996). The Register (RPA) came into legal existence in 1998. SOPA ceased to exist, but many of its standards and some of its grievance procedures became part of the RPA practice (RPA 2015).

Discussions of ethics continued within the SAA executive boards and the membership periodically. A workshop-conference in 1991 resulted in a recommended code (Lynott 1997; Lynott and Wylie 1995) that was adopted and updated periodically over the following years (SAA 2015). By 1980 most national and many state and regional archaeological societies and museums had developed and adopted standards of practice and/or codes of ethics (for listings see especially the AAM 2015 and ICOM 2015 websites). Many codes were updated after the passage of NAGPRA in 1990 (see below) in recognition of its implications and requirements for archaeological and museum curation practices Simultaneously, there were continuing

discussions of the implications of long-term curation of archaeological materials and records required by federal and state regulations (Childs 2004).

By 1980–82 CRM and conservation archaeology practices and procedures had become relatively well defined, e.g. Fowler (1982, 1984, 1985, 1986), Green (2008), King (1983), Schiffer and Gumerman (1978). Contract archaeology began to expand exponentially as governmental agencies and private companies with federally funded or licensed contracts responded to the requirements of federal historic preservation legislation and rules. Several universities developed contract archaeology programs as a means to fund the training of students. Some museums developed contract programs as a means of increasing their collections and funding required long-term curation requirements.

However, the major developments took place in the private sector, as dozens of contract archaeology firms were established from the late 1970s on all across the United States. Many lasted only a few years; others expanded and flourished. In 1995, private contract firms founded a trade association, the American Cultural Resources Association (ACRA) dedicated to advancing the business and professional interests of its members. A code of ethics and professional conduct (ACRA 2015) sets forth member's responsibilities to the public, clients, employees, and colleagues.

Expanding CRM professionalism

There were less than a dozen federal archaeologists at the 1974 Denver CRM conference, most of them employed by the National Park Service. A decade later, all federal land-managing agencies and many state agencies, such as departments of transportation, bureaus of outdoor recreation, etc., employed archaeologists and other historic preservation specialists at local, regional, and national levels.

During the same decade, the nation-wide "Preservation System," became fully developed and functional, linking state and tribal historic preservation offices, federal and state agencies, and contract archaeology programs. The "System" was, and remains, an intricate and complex web of rules, requirements, regulations, and procedures (Hardesty and Little 2009; National Park Service 2006; see also McManamon, Chapter 1, this volume), many of them with implications for archaeological standards and ethics.

During the same period, 1974–85, there were major advances in research and analysis tools and procedures, such as Geographical Information Systems (GIS), the use of satellite imagery, ground penetrating radar, new methods of computer-based statistical analysis, etc. By 1985 it was apparent that there was a need for continuing education training in federal laws, policies and programs, as well as the application of new field and laboratory research technologies and methods. Federal requirements that CRM programs and projects include formal consulting with descendant communities, as well as the requirements of NAGPRA, after it came into existence in 1990, created

needs for additional training, including discussions of the ethical dimensions of relevant laws, regulations, and procedures.

In response to requests from a number of contract and federal archaeologists and others, Don Fowler created the University of Nevada Reno (UNR) Continuing Education Program in Heritage Resources Management in May 1987. The program was designed to meet the expressed need by working professionals in Historic Preservation and CRM, land management, environmental consulting firms, and Native American tribes and First Nations governments and cultural preservation offices, for professional level continuing education. Courses, seminars, and workshops were developed on legal, administrative, ethical, scientific and technical, consulting, and museum exhibits topics. A faculty of specialists from across the country, drawn from universities, museums, state and federal agencies, corporations, the judiciary, and Indian tribes developed and taught courses all across the United States and its Territories. The program operated at various times on the national level under formal cooperative agreements with the Advisory Council on Historic Preservation and the National Park Service. It was the first of its kind in the United States.

Between May 1987 and May 2005, the program presented 371 courses to 9,412 participants at some 40+ venues from Guam to Boston. Several dozen of the courses focused on the legal and ethical requirements of NAGPRA; others focused on the legal and ethical aspects of formal consulting with Indian tribes. The program also hosted the SAA-sponsored workshops in 1991 that led to the current SAA (2015) SAA Code of Ethics (Lynott 1997; Lynott and Wylie 1995).

Ethics, human remains, and relations with descendant communities

Two major ethical issues facing American archaeologists and museum curators from 1974 on (Johnson 1977: 90–96) were, and continue to be, the handling and disposition of human remains excavated in the course of archaeological work, and archaeologists' ethical and other relationships with descendant communities.

The "public good" ethic of excavating and then curating human remains indefinitely for subsequent scientific study or display is often in direct conflict with beliefs and values of many descendant communities. Seminar 5, Archaeology and Native Americans, at the Airlie House conclave (Johnson 1977) recognized the issue, but concluded that only in cases of "demonstrable cultural and/or biological affinity with specific living groups" should archaeologists seek out "traditional spiritual leaders" and "decisions [be] made as to the proper disposition of [human remains] after appropriate study . . . When osteological remains cannot be specifically identified with a contemporary group, the interests of the particular group are no longer applicable" but the remains should, nonetheless, be properly curated

(Johnson 1977: 95). This was not an acceptable position for many Native Americans.

By 1985, the Native American Rights Fund, the American Indian Movement, the American Indians Against Desecration, and other organizations were putting pressure on federal land-managing agencies, museums, the U.S. Congress, and the SAA to stop perceived desecration of graves and return existing collections of human remains held in public repositories to appropriate descendant communities.

At the fiftieth anniversary meeting of the SAA in Denver, Don Fowler became president of the Society for American Archaeology, and Dena Ferron Dincauze (who was then president of SOPA) became president-elect of SAA. Fowler, Dincauze, the SAA board, and many Society members agreed it was imperative that a national dialogue be opened between archaeologists and Native Americans on the issue of "reburial." Several archaeologists at state and regional levels had already begun such dialogues, e.g. Ferguson (1996), Zimmerman (1985). Dincauze developed a list of interested parties: Native Americans, archaeologists, federal and state agency personnel, museum curators, and knowledgeable others, who could discuss the issues from various perspectives. Fowler contacted Alfonso Ortiz, anthropologist and member of the Ohkay Owingeh (San Juan) Pueblo. Ortiz, a trustee of the Newberry Library in Chicago, contacted Fred Hoxie, Director of the Library's Darcy McNickle Center, who agreed to act as host. The National Geographic Society Research Committee, the Conoco Foundation, and Woodward-Clyde Consultants provided the funding.

The conference was held in June, 1985 with two days of frank, open, and intense discussion. The proceedings were recorded, transcribed, printed, and distributed by the SAA (Quick 1985). A Conference consensus statement said:

> Human remains should always be treated with the utmost respect; archaeologists and Native Americans should work together to resolve issues of reburial and investigation of mortuary sites; cooperative procedures should develop relevant ethical codes and the means, including legal means, to move toward resolution of reburial and disposition of human remains issues.
>
> (Quick 1985: 175)

The conference opened additional informal communication channels between SAA representatives and Native American legal and CRM personnel which continued in some cases to the present day.

Native American rights groups and their supporters continued to present their positions to SAA, other archaeological organizations, and federal and state agencies. At the 1986 SAA meeting in New Orleans, Fowler chaired an open forum on "Ethics and Reburial." Archaeologists and Native Americans and their representatives spoke, often in emotional terms. The ethical

conflict between the "public good" concept of curating human remains for future study and educational purposes versus the excavation and curation of remains seen as desecration and the quest for repatriation was palpable. By 1986 it was clear that matters were moving toward federal legislation on the reburial issue. Discussions continued within SAA, with other professional societies, through the CCNAS and other channels, with Native American groups, and informally with relevant Congressional committees over the next two years. Loretta Neuman, the SAA's governmental affairs representative, was instrumental in facilitating many of those discussions. Various bills began to be proposed and reviewed by Congressional committees.

In 1989 SAA President Jeremy Sabloff appointed a "Task Force on Reburial," later the Committee on Repatriation, chaired by Keith Kintigh. The committee, Kintigh, William Lovis, Vincas Steponaitis, Lynne Goldstein, and Richard I. Ford, played a major role in the drafting of the legislation that became NAGPRA. In the end, the law represented a major compromise between Native American groups, the SAA, and other professional and museum groups (see Goldstein and Kintigh 1990, and Lovis et al. 2004 for a detailed history of the development and passage of NAGPRA; see also the website http:/rla.unc.edu/saa/repat for a full documentary coverage of NAGPRA legislative history). Once NAGPRA was signed into law, the complex ongoing process of interpretation of the law and its implementation began, and continues (see e.g., McManamon [2004, 2006] for reviews of the implementation process and the ethical implications raised thereby).

Reburial and descendant communities

The advent of the World Archaeological Congress (WAC) in 1986 forefronted archaeological ethics and descendant community relationships and changed the dialogue within the U.S. archaeological profession.

"WAC is committed to diversity, . . . to redressing global inequities in archaeology . . . [and to] . . . protecting the cultural heritage of Indigenous peoples, minorities and economically disadvantaged countries . . ." (WAC worldarch.org). In 1989, the Congress adopted by reference the Vermillion Accord on Human Remains. The major points of the Accord are:

> Respect for all mortal remains . . . irrespective of origin, race, religion, nationality, custom and tradition . . . Respect for the wishes of the local community and of relatives or guardians of the dead . . . Respect for the scientific research value of skeletal, mummified and other human remains (including fossil hominids) shall be accorded when such value is demonstrated to exist . . . Agreement on the disposition of fossil, skeletal, mummified and other remains shall be reached by negotiation on the basis of mutual respect for the legitimate concerns of Indigenous peoples. . . [as well as] legitimate concerns of science and education . . . The express recognition that the concerns of various ethnic groups, as

> well as those of science, are legitimate and to be respected, will permit acceptable agreements to be reached and honored.
>
> (WAC 1989)

The WAC (1990) Code of Ethics focuses on "the importance of indigenous cultural heritage, including sites, places, objects, artefacts, human remains, to the survival of indigenous cultures;" the importance of protecting that heritage, the special importance of

> ancestral human remains, and sites containing and/or associated with such remains, to indigenous peoples . . . the relationship between indigenous peoples and their cultural heritage exists irrespective of legal ownership and indigenous ownership of that heritage. . . [The recognition of] indigenous methodologies for interpreting, curating, managing and protecting indigenous cultural heritage. . . [The need] to establish equitable partnerships and relationships between archaeologists and indigenous peoples whose cultural heritage is being investigated. To seek, whenever possible, representation of indigenous peoples in agencies funding or authorizing research to be certain their view is considered . . . in setting research standards, questions, priorities and goals.

The WAC principles questioned the adequacy of extant archaeological codes of ethics in the United States and elsewhere. This has led to a plethora of publications since 1990 from a wide range of socio-political perspectives analyzing and critiquing those codes as well as the ethical implications of NAGPRA. Space does not permit an adequate review of these critiques, but see Adler and Brunig (2012), Colwell-Chanthaphonh et al. (2008), Fforde, Hubert and Turnbull (2004), Fine-Dare (2002), Gnecco and Lippert, eds. Gibbon (2005), Hamilakis and Duke (2007), Scarre and Scarre (2006), Wood and Powell (1993), Wylie (1996, 2015), Zimmerman (1998), and numerous other publications found on the Internet.

A key concern of Native Americans has been how their cultural pasts have been interpreted by archaeologists (Colwell-Chanthaphonh and Ferguson 2007; Watkins 2000, 2005). From the 1880s on, with rare exceptions, American archaeologists developed explanations of culture histories that largely ignored local Native peoples' memories and understandings of those histories. Since about 1980, archaeologists across the United States, but especially in the Southwest, have been positively addressing and redressing this issue, working closely with descendant communities to develop culture histories fruitfully melding archaeological data and traditional historical knowledge, e.g., Adler (2005), Eiselt (2012), Fowles (2013), Ortman (2012), Roberts (2014), and Zedeno (2014).

American archaeology has gone through major transformations since the 1974 Denver conference in theoretical frameworks, methodologies, business models, ethical awareness, and responsibilities to other professionals,

clients, descendant communities, and the public at large. The process will, in all likelihood, continue over the next several decades.

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5 Transportation archaeology

40 years of contributions, issues, and challenges

Owen Lindauer

Introduction

I like to call the archaeology I have participated in over the past 40 years that has supported highway infrastructure projects "Transportation Archaeology." This part of archaeology and cultural resource management (CRM) involves archaeological investigations and related activities that are carried out as part of or in anticipation of roadway construction projects. It includes archaeological documentary research and surveys done during highway project planning, site examination to determine the significance of archaeological sites that may be impacted by a highway project, and site excavations to recover data from archaeological resources that will be otherwise destroyed by roadway construction. Transportation archaeology programs and projects are practiced by federal and state organizations. The first transportation archaeology projects were executed by a State's archaeologist or State museum. These days CRM contracting firms perform the investigations. Decades ago all of this archaeological activity related to highway projects resulted in the establishment of a small, yet enduring professional organization of the Association of Transportation Archaeologists (ATA), composed of individuals, mainly archaeologists, who are employed by State Departments of Transportation, private contract CRM firms, and the occasional federal agency. To supplement my perspectives in this chapter, I called on several of my ATA colleagues to review transportation archaeology's contributions, issues, and challenges, as well as special needs in this area of archaeology and CRM. I asked my colleagues to answer the following three questions:

1 What are the somewhat unique set of constraints, issues, and challenges exerted by Highway archaeology "development?"
2 What are some of the transportation archaeology contributions to archaeological research?
3 Has transportation archaeology been a worthy investment and one that should continue as in the past or be modified to accommodate what we hope to see in future infrastructure investments? What should be

changed? In other words, what has worked or is working especially well and what has not worked or may still not be working well?

My own perspective on these topics, along with what my colleagues provided, is described in the second half of this chapter. However, before diving into these topics, I next provide important background on transportation archaeology. This is the archaeology conducted in advance of roadway and highway projects. It comes about because of a handful of federal laws that require highway construction projects funded with federal money to consider the impacts of those projects on historic properties, a term that includes archaeological resources. Because highway construction and reconstruction are so important to the United States economy, a lot of money and effort have been expended in transportation archaeology over the past 40 years. Just like any other "topical archaeology" (e.g., academic archaeology, underwater archaeology, the regional archaeology of various sections of the country, or time periods) there are "good," "bad,", and "ugly" examples in transportation archaeology. As a result of an annual survey of archaeology programs conducted by the National Park Service, I've learned that more public money is expended in transportation archaeology than any other "archaeology" conducted in the United States (e.g., see the National Park Service Archaeology Program webpages for "Federal Archaeology, Reports to Congress" at www.nps.gov/archaeology/SRC/index.htm: accessed 8 August 2015). Aside from enabling a lot of archaeologists to make an honest living, transportation archaeology has made its own mark on American archaeology.

Are there unique constraints, issues, and challenges in transportation archaeology?

Initially, I couldn't get all my colleagues to agree that there are a unique set of constraints or challenges for transportation archaeology. At one time the requirement of confining archaeological investigations to narrow swaths or ribbons of highway alignments; working under short time frames, in upland areas away from large sites, and with a heavy reliance on sampling; exposure to looting; exposure to the general public; and, working with tribes, all were constraints and issues tied to highway work. However, since in contemporary archaeology all of these constraints, with the exception of the first one listed, may apply generally, perhaps it is a fallacy to believe that transportation archaeology has more constraints than other specializations of archaeology. Our universe is limited to where the roads go. In many places, roads more often than not follow the floodplain and occasionally traverse the uplands. Such settings have been the locations of human activities and settlements for millennia, so transportation archaeology frequently affects areas with substantial archaeological remains.

But a far bigger challenge for the transportation archaeologist is that he or she ends up spending most of their time figuring out ways of avoiding or minimizing the possible impacts to archaeological resources, thus limiting the necessity of archaeological investigations. This comes from being part of an "environmental discipline," as highway engineers characterize us. Engineers may frown upon the discovery of sites in the midst of their proposed roadways because of the time it takes to evaluate, or worse, to excavate those archaeological sites. You might say that "good" transportation archaeology is the excavation that never takes place because resources were avoided by highway work (and hopefully preserved from future development). "Good" archaeology may generally expand the boundaries of knowledge by contributing to a body of research. In many ways, the tie to research for transportation archaeology comes with having to comply with preservation laws, which stress the importance of "significant" research values and research designs. I'd like to say that transportation archaeology is immune from funding or conducting investigations in pursuit of trivial information about trivial problems, but I can't. Transportation archaeology has had its share of "bad" and "ugly" projects or situations.

Working with tribes, I'm happy to say, is something that most archaeologists I've met can say they do. That wasn't always the case. However, even though archaeologists who work with tribes has become routine, I've noticed that it is not unusual for transportation archaeologists to have a better working relationship with tribes than other archaeologists. A number of tribes at a listening workshop I recently attended in Reno were annoyed at or angry with several federal agencies, happily none of them related to transportation archaeology. I have always found tribal representatives willing to talk about their concerns and to try and work though problems. It hasn't hurt that many transportation archaeologists have had long working relations with tribes, will pay expenses for tribal travel, as well as compensate for tribal expertise in the identification and evaluation of properties.

Interacting with the public is something I first experienced in the early 1980s as a young transportation archaeologist. I was working for the Arizona State Museum on a project along Interstate 10 in the City of Phoenix at the Hohokam site of Las Colinas. Here the public could visit an ongoing excavation where there was an on-site "museum" on one side of the fence and working archaeologists on the other. Archaeologists spoke directly to the public about archaeology as a routine part of their work. Twenty years later when I worked for the Texas Department of Transportation, a number of State Departments of Transportation (in Texas, Maryland, Delaware, and Illinois) had devoted sections of their agency's website to archaeological public outreach. These webpages not only have technical archaeological reports and photographs, but also articles and newsletters targeted for the public audience. I wonder how often non-transportation archaeologists consider the public interest? Transportation archaeologists are compelled

by preservation and environmental laws and regulations to consider public input regarding the identification, evaluation, and resolution of adverse effects to sites and to act in the public interest. As with a number of the topics in this section, involvement with the public comes with being part of an environmental discipline within a development agency where transparency of action and public involvement/public benefit are important considerations. Appropriately identifying and disclosing environmental impacts, including impacts to archaeological sites, must be weighed in decision-making, balancing the need for development with destructive impacts to the environment.

The contributions of transportation archaeology to archaeological research

Transportation archaeologists have made and continue to make important contributions to archaeological research. I spent most of my career in Arizona and can tell you that the boundaries of knowledge for the following archaeological topics have been greatly expanded by highway archaeology: Early Archaic sedentism, incipient farming, the development of social complexity, and understanding the extensive nature of irrigation systems. These sorts of contributions of archaeological research are equally true in many other states. Regarding archaeological methods and techniques, transportation archaeology also has contributed substantially to the funding and development of predictive models, which assist in discovering, or at least suggesting the level of effort necessary to discover, archaeological sites in various kinds of environments. Beginning in the early 1990s a significant amount of Federal Highway Administration transportation enhancement funding for archaeological planning and research became available to State Museums, State Historic Preservation Offices, and State Departments of Transportation. In particular the Intermodal Surface Transportation Efficiency Act of 1991 (Public Law 102–240) and in 1998 the Transportation Equity Act for the 21st Century (Public Law 105–178) provided extra funding for a wide range of projects. It funded the development of archaeological site and survey area GIS databases in many states (e.g., Arizona, Minnesota, New Mexico, and Texas). These systems organize and better preserve archaeological information. Contemporary archaeological resource management is easier because these data now are systematically recorded and available for use in background studies and other planning activities. They also have provided the basis for the development of research tools as such as site predictive models. An example of such a predicative model developed for Minnesota continues to be used widely in that state for a wide range of undertakings, not only in transportation projects (Minnesota Department of Transportation 2015).

Transportation enhancement funds authorized by these laws and similar ones supported broader distribution of the results of transportation

archaeology projects and curation and research on existing archaeological collections from past highway projects. The reports of several large archaeological projects conducted as part of highway construction in the Phoenix Basin of Arizona were published on a set of compact discs and distributed in 2003. These digital files now have been added to tDAR (the Digital Archaeological Record) digital repository and are even more widely accessible (Phoenix Basin Archaeology 2015). More recently, enhancement funding in California allowed for a project to re-catalog and formally analyze 120 boxes of artifacts, field notes, and photographs from excavations at seven sites in the Cuyama Valley of southern coastal California (Eubanks 2015). Apart from special enhancement funding, the costs for curation for archaeological materials recovered from highway projects and associated records are a part of the cost of highway construction. Highway transportation departments are among the most active public agencies in wrestling with and providing solutions to the curation problem in archaeology.

In project administration and finances, transportation archaeology has brought an important innovation that has greatly improved the quality of archaeological research – competitive submittals of research designs as part of the process to select the firm or organization best qualified to conduct investigations on an archaeological site impacted by a highway. My former supervisor, Bettina Rosenberg, at the Arizona Department of Transportation initiated a program for a competitive bid process for archaeological investigations of a large, complex site or a collection of sites within a highway corridor (e.g., Las Ciudad, Las Colinas, Pueblo Grande [Phoenix Basin Archaeology 2015]). The "bids" were research designs and research teams whose submitters competed head to head. The review panels consisted of expert archaeologists employed by state and federal agencies. Proposals were evaluated with the intent that the one with the greatest merit, based on both the research design and the team, was given the award with costs negotiated later. Such competition raised the bar of innovation and creativity in applying research issues to data recovery. While there is a competitive aspect to awards of National Science Foundation and other grants, the difference here is that all competitors are proposing to investigate the same site or locality. Unfortunately, in recent years, this approach to applying market forces to stimulating high quality research investigations for transportation archaeology has been abandoned and the result is that the archaeological work in these contexts has become less innovative and creative.

Unfortunately, transportation archaeology has resulted in its share of bad and ugly research. Mainly such situations occur when archaeological investigations for highway projects produce, sometimes at substantial cost, only trivial results. These kinds of results tarnish CRM generally. Trivial or useless research often results from the practice of archaeological field recovery as an end in-and-of itself rather than as a means to carry through analyses and reports or publications that address issues posed in a research design. Bad and ugly archaeological research also results from research designs

that are flawed or are made redundant by ignorance of the literature. CRM results are often criticized for being poorly reported or never published.

Transportation archaeology: a worth-while investment? Continue or change?

Having considered where transportation archaeology has been, I'd like to contemplate its worth and where this sub-discipline should be heading. For archaeologists whose careers are tied to transportation, the fact that the Interstate Highway System has been built suggests that the era of big projects, big archaeology, and big ideas is over. It also is true that, after decades of controversies and law suits, highway engineers and planners have developed road alignments that generally avoid and minimize impacts to archaeological sites. Some would say that the future is one with a reduced opportunity for archaeological fieldwork. I suspect this is generally true for all of CRM archaeology. But it also is true that there will always be a need for transportation archaeologists because our transportation infrastructure will need to improve, grow, and in doing so, impact archaeological sites.

The good news is that, despite attempts by a few congressional zealots, the set of environmental laws that require consideration of impacts to significant archaeological resources and mitigation of impacts to those that are affected by transportation undertakings, are not likely to be repealed in the future. I believe transportation archaeologists will continue to have the money needed to effectively identify, evaluate, and if necessary, excavate archaeological sites as part of planning and construction of roadway projects. This dependable source of financial support has been well-spent so far. As investments in technological advance, we can expect additional improved tools for archaeological investigations and preservation: to develop resource inventory databases, digital data and information archives, and Geographic Information Systems (GIS) that make information much more easily available for management and research purposes; to identify sites without ground disturbance via remote sensing and other non-intrusive techniques; to integrate available information for applications to predictive modeling; and, for improved and more efficient data collection through 3-D cameras, etc.

The challenge for yesterday, today, and for tomorrow is to continue to advance archaeological research. While transportation archaeology's contribution to research is laudable, much of the information produced by archaeological investigations linked to highway planning and construction is what could be called "management oriented." The focus is on where sites are and where they are not, ways to identify and evaluate sites, and ways to minimize impacts to sites. When sites are investigated, ever smaller portions are subject to excavations, some investigations are more focused on the practices of field archaeology rather than how any results might contribute to research. Transportation archaeologists must assume most of the blame for producing irrelevant, uninspired, and largely unread reports of their investigations. But I see that trend changing largely due

to the changes over the last 15–20 years in our economy and in higher education.

I believe and have been working over the past 15 years to encourage a better partnership between the archaeologists in higher education and transportation archaeologists, with a focus of training future professionals. My sense is that, for the great number of academic archaeology programs nationwide, universities can no longer attract the numbers of students they need to justify their existence and suppose that all or even a small fraction will find future jobs teaching in academic settings. To maintain their relevance and to serve public infrastructure needs, universities must offer applied archaeology in a variety of ways. There must be better partnerships between agencies that employ archaeologists and the institutions that educate people for careers in archaeology. Also, the knowledge of an applied archaeologist requires the ability to apply the tools and concepts of archaeology/anthropology to other environmental disciplines which are the subject matter of academic graduate programs. This is a trend that several universities have already embraced in ways such as including archaeologists in a "school of sustainability" as is found at Arizona State University. I can also tell you that there is a dramatic need for individuals who can apply the critical thinking learned by advanced undergraduate and graduate education in government to such topics as climate change and adaptation.

What should be changed? Thoughts to improve transportation archaeology research

I believe transportation archaeologists must do more to eradicate bad and ugly archaeological research. Many already believe that CRM projects rarely produce useful products and may consider the expenditure of time and resources wasteful. But sloppy research is not unique to CRM. *Lancet*, the highly respected English medical journal, in January 2014 reported that about $200 billion, an astonishing 85 percent of the world's spending on medical research, is squandered on studies that were flawed in their design, redundant, never published, or poorly reported. The journal published a series of five articles on increasing value and reducing waste in medical research (Al-Shahi et al. 2014; Chalmers et al. 2014; Chan et al. 2014; Glasziou et al. 2014; Ioannidis et al. 2014). I have adapted the gist of these articles to what I would like to see as improvements to transportation archaeology research: setting research priorities; improving research design, conduct, and analysis; improving research regulation and management; inhibiting inaccessible research; dis-incentivizing incomplete or unusable research.

Regarding ***setting research priorities***, the four priorities should be:

- Consider ways to improve the yield from basic research to identify, evaluate and analyze archaeological resources. For example, develop better and more efficient ways to manage information: field recordkeeping, use of GIS, or merging electronic databases.

- Increase the transparency of processes that prioritizes the needs of potential users of research. Transportation archaeologists need to be aware of and to continue to participate in state/regional archaeological councils that define, prioritize, and discuss research needs. Outside of the concluding sections of their articles or reports or in proposals for funded research, archaeologists rarely give voice to their research needs. While prioritizing research is likely to be an anathema, narrowing the range of research topics to narrow a focus, for a region or state, would likely encourage collaboration among experts.
- Always begin consideration of research with a systematic assessment of existing literature. This means not just recounting the state of knowledge on an issue or culture area as a culture history "boilerplate," but to develop summaries that clearly distinguish research needs from areas of established understandings. Such consideration usually follows from researchers who have a research focus. CRM firm staff may establish a geographic or topical expertise, and a subsequent commitment to a systematic assessment of the literature.
- Research funders have primary responsibility for reductions in waste resulting from decisions about what research to do. The sponsors or funders of transportation archaeology must set a high bar for research expectations. To achieve this, peer review (of proposals, of draft reports, and involving information sharing meetings) is an important tool. Too often there may be no "bar" because of the project sponsor's construction schedule.

Regarding ***improvements to research design, conduct, analysis, and reporting***:

- Research approach may suffer from poor protocols and design. Sloppy archaeological research may fail to define data and methodology and how the information they collect will relate to the data they need to address research questions. Improvement in research designs may begin by requiring that research protocols and methodologies be explicit.
- Research results may suffer from poor utility of information and inappropriate use of statistical analysis or quantitative description. Archaeologists must consider how the sample from data recovery relates to the problem/research topic under study. The design of research must explain the adequacy of the sample. Throughout the entire process of investigation, one must assess information utility, and report it as part of conclusions. This is especially important for transportation archaeology, where the sample recovered is already a product of decisions to avoid and minimize impacts to a site.
- Guard against outcome misconception. Archaeologists need to compare what their analysis suggests as outcomes to the research design framework to minimize misconceptions.

- Avoid the pitfall of insufficient consideration of other evidence. Whether developing research approaches or implementing them, archaeologists need to plan to collect and analyze data that result in converging lines of evidence to test ideas. While possibly difficult to achieve on a single project, transportation archaeologists must both apply evidence from existing literature as well as target evidence for future research investigations.

Regarding ***improving research regulation and management*** to increase value and reduce waste:

- Funders of research should regulate and use their influence to reduce causes of waste and inefficiency in research. Funders of research are responsible for not empowering and perpetuating bad, useless, or trivial research. For transportation archaeologists, this only can happen when they can distinguish promising research approaches from unpromising ones; and investigators who can tap research potential.
- Regulators and policy makers should work with archaeological professionals to streamline and harmonize procedures that are followed to comply with the laws, regulations, and guidelines that require CRM. These procedures should ensure that when an investment is made in research, the outcome has value. The legal foundation for CRM sets high expectations for research outcomes. People who award or oversee archaeological investigations need to apply standards to promote good research practice to ensure good research results.

Regarding ***inhibiting inaccessible research***:

- Research sponsors or funders should adopt performance metrics that recognize full dissemination of research. Having an expectation of a metric for dissemination is something new for archaeology. Fortunately, the electronic means of ensuring easy discovery of, access to, and long-term preservation of data may now occur by using digital repositories (e.g., tDAR, or another repository that provides for this kind of digital curation service).
- Investigators, funders, sponsors, regulators, and journals should systematically develop and adopt standards that assure the accuracy and completeness of content of key study documents and for data-sharing practices. Many practitioners are averse to subscribing to standard practices and archaeology is no different. But archaeologists and historic preservation staff at the Texas Department of Transportation have developed a *TxDOT Standards of Uniformity* (Texas Department of Transportation 2011) that they apply to reviews of reports of transportation archaeology that is an important move towards assurance of accuracy and completeness.

- Funders, sponsors, regulators, journal editors, and legislators should endorse and enforce wide availability of study information, and making that information comprehensible to the general public. Efficiency of research increases by promoting integration of research in both the disciplinary and public spheres. Good research needs to be promoted as much to the discipline as to the public.
- Finally, archaeological researchers have an ethical duty to preserve the data they produce in a digital form that is then curated and made available to future researchers. Archaeologists must preserve the results of their investigations in a similar manner as the artifacts they collect. Several digital archives now exist for curation of data and metadata.

Finally, ***dis-incentivizing incomplete or unusable research*** would curb its frequency. While the effort to conduct archaeological research in CRM may necessarily be piecemeal due to site avoidance and minimization of areas of impact, a good research approach knits together pieces to a coherent whole. Even partial investigations of sites must answer the following four questions: (1) what questions were addressed and why, (2) what was done (what was excavated, methods, and lab analyses), (3) what was learned (from field investigations, from lab analyses), and (4) what do the findings mean (specifically in the context of what was already known)? Answers should be assessable, complete, and make allowances for different audiences.

In closing I would like to share what I think has worked especially well for transportation archaeologists: career development and satisfaction. Transportation archaeologists I would contend, have career longevity and success comparable to or better than many archaeologists in academic settings. Aside from many more opportunities for employment and career advancement, work in transportation often calls upon the array of tools and concepts from archaeology/anthropology: problem recognition, formulation and solving; critical thinking, distinguishing data from information, sampling, relevance, adaptation, collaboration (often with individuals with quite different educational backgrounds and professional objectives); fitness; the need to balance needs versus wants. I have met a multitude of transportation archaeologists whose careers advanced into the general environmental discipline, and into high levels at state and federal agencies. Going forward, transportation archaeologists will add to and contribute to pushing the boundaries of archaeological knowledge. But they will also, by their positions and influence, affect public policy on everything from promoting the public value of archaeology, to ascribing the proper consideration of environmental impacts in the planning and carrying out of development projects, to providing valuable perspectives to climate change and it future impacts to our society.

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6 All the gold on the map

Sarah H. Schlanger and Signa Larralde

It is hard to remember today, with the re-emergence of arguments over the value of public lands in the American West that the public domain of the United States of America once stretched from the Appalachian Mountains to the Pacific. Of the original 1.8 billion acres, about two-thirds have gone out of public ownership into the hands individuals, corporations, and the states (Muhn and Stuart 1988). Four civilian federal agencies – the Bureau of Land Management, the U.S. Forest Service, the National Park Service, and the U.S. Fish and Wildlife Service – manage almost all of what remains. Most modern maps display ownership status with some variation of a simple color scheme, but almost all show the Bureau of Land Management's public lands in tan (or, as the agency prefers, in gold). The Bureau of Land Management (BLM), has by far the largest land base, managing some 250 million acres, or more than 40 percent of the federal land surface (most of the medium gray on this map, Figure 6.1). Here we describe the arc of cultural resource management (CRM) as it has played out in the BLM and on the public lands it manages over the past four decades and we explore how the BLM, with its small staff and its "multiple-use mission," has met the challenges of CRM for the lion's share of the public domain. Our review includes how the BLM developed a staff of cultural resource specialists, how it created inventory processes, and how the BLM has worked closely with state-based preservation agencies to manage inventory results. We review three recent examples of new approaches to meeting the BLM's cultural resource management needs, and we conclude with some thoughts on what might come next as the BLM responds to the challenge of managing archaeological resources across all the gold on the map.

The BLM's "multiple-use mission" was written into law with the Federal Land Policy and Management Act of 1976. FLPMA is BLM's governing act, and it calls for the Bureau to retain the public domain, and to manage it for the sustained use as well as conservation of natural and cultural resources. The Bureau's cultural resources challenge was framed several years earlier, however, with the National Historic Preservation Act of 1966 (NHPA), the National Environmental Policy Act of 1969 (NEPA), and Executive Order 11593, issued by Richard Nixon in 1971, which called for inventory of

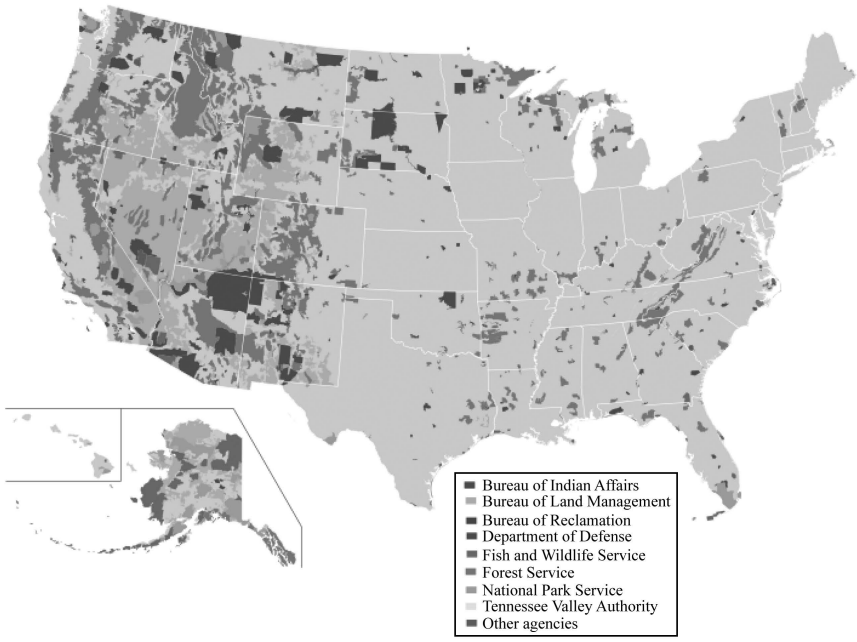

Figure 6.1 Public lands in the United States. Most of the medium gray land on this map is BLM-managed public lands.

all public lands and the identification of all sites, buildings, districts, and objects that appear to qualify for listing on the National Register of Historic Places by July 1, 1973. Clearly, BLM did not meet this impossible mandate. Instead, the BLM adopted a management program that began in law, but was turned into practice by a dedicated corps of field archaeologists and cultural resource managers.

NHPA babies, NEPA babies, FLPMA babies

Developing a professional staff takes time. In 1969, the Bureau had one archaeologist. Five years later, BLM added another archaeologist and a historian. That same year, BLM's 12 State Offices (Figure 6.2) each gained an archaeologist. The BLM's field offices, each under the direction of their respective state office, were finally staffed in the late 1970s with the addition of one or more archaeologists, or more accurately, one or more cultural resource managers.

The various specialists added to satisfy the federal laws of the 1960s and 1970s are BLM's "NHPA, NEPA and FLPMA babies." They were hired on under the mandates of these three federal laws, and they grew up with the

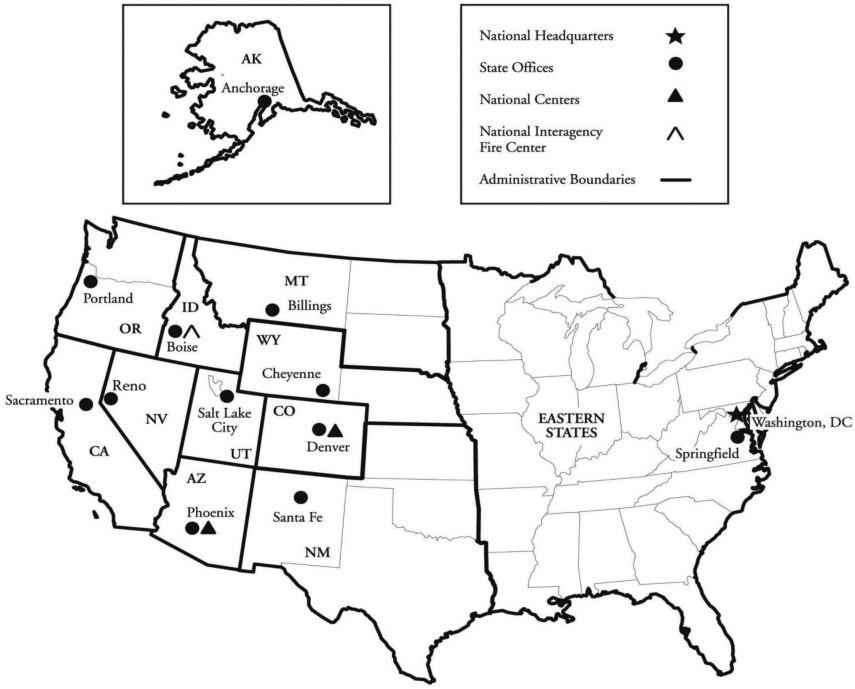

Figure 6.2 The Bureau of Land Management state offices and their administrative jurisdictions

Source: Public Land Statistics 2014, U.S. Department of Interior, Bureau of Land Management

agency as it learned how to implement these laws on the public lands. They had two major challenges: (1) To meet the immediate needs of the Bureau to carry out its obligations under Sections 106 and 110 of the NHPA (i.e., to consider the effects of federal undertakings on historic properties and to inventory the public lands and identify resources that are eligible for nomination to the National Register of Historic Places, respectively), and (2) to meet the equally new challenge of helping the Bureau write management plans for 250 million acres of public lands.

Fortunately, in California, where BLM would develop its first cadre of "Desert Rangers/Archaeologists," (the Bureau's initial job title for field staff with responsibilities for archaeological resources), the academic sector's interests in landscape-scale inventory and the interests of the emerging field of federal or government archaeology came together neatly and providentially. Graduate students at the University of California Berkeley, Davis, and Riverside

were doing random quadrat surveys in the Great Basin valleys. Their goal was to test ethnographically derived settlement pattern models. Along the way, they began to build a picture of how the archaeological record of the West's interior valleys was distributed across landscapes managed by federal agencies. These students and their volunteer crews became some of the first BLM field office archaeologists, and the research-directed random sample quadrat survey method for characterizing large landscapes came with them. A number of these studies can be found in the Bureau of Land Management – California collection in tDAR (Bureau of Land Management-California 2017).

In field office after field office, BLM's young archaeologists were faced with figuring out good solutions to immediate and far-ranging problems. As our "NHPA, NEPA, and FLPMA baby" colleagues are fond of recalling: "We were making it up as we went along." The scale of public land uses emerging in the 1970s and 1980s was unprecedented. Livestock grazing and timbering continued as always, while mines were impacting landscapes on a scale never before seen. The oil embargos and energy crises of the early 1970s pushed coal, oil, and gas production, and related pipelines, electric lines, and roads onto the public lands as well and the environmental compliance burden fell mainly on the BLM. In addition, the post-World War II West was experiencing its own baby boom and the public lands were beginning to attract not homesteaders (FLPMA ended the wholesale giveaways of the public lands), but public lands users. In the early 1970s, BLM lands – gold or not – were largely out of sight and a rough jeep drive away for most Americans. Today, thousands of communities – small and large – have grown into what was once open space, and people are out on the public lands in unprecedented numbers.

Class I, Class II, and Class III cultural resources inventory: a BLM legacy

In the late 1970s, the BLM introduced a way of describing archaeological inventory and prescribing inventory intensity that would become its legacy: Class I, II and III inventories (Bureau of Land Management 2004, Manual 8110.21). These inventory types describe how the BLM intends to meet the NHPA Section 106 and 110 requirements to develop a full inventory of the public lands to identify cultural resources that qualify for listing on the National Register of Historic Places.

Class I inventories are intended to develop and present a comprehensive view of what we know about large regions, landscapes, and the millions of acres managed by any particular field office. They address "the range of variety, the apparent extent, and the probable importance of each of the various kinds of cultural resources presently known to exist within the study area, including how and by whom they may be considered important. . ." (Bureau of Land Management 2004: Manual 8110.21A). They identify and tackle research and management questions: where might cultural resources be

expected to occur? How should BLM protect and preserve these resources? Class I inventories, which are the BLM's equivalent of historical background or context studies, syntheses, and overviews, are intended to inform planning and resource use decisions for projects at a variety of scales, up to and including all the public lands within a given field office. They were developed to meet the FLPMA requirement that each field office develop a comprehensive resource management plan, but today the BLM also uses Class I inventories to assist in planning and development of projects that may cross field office boundaries, and that affect multi-jurisdictional landscapes. Class I inventories also to serve as the major mechanism by which BLM maintains, updates, and evaluates its cultural resource inventory for any given management area.

A Class II survey is a statistically-based sample survey, designed to aid in characterizing the density, diversity, and distribution of sites. This type of inventory is a direct descendant of the random sample quadrat survey. Class II inventories were common in the 1970s and 1980s, when there were vast tracts of archaeologically unknown lands, but are used sparingly today.

BLM's Class III inventory is a thorough pedestrian survey of an entire target area, intended to locate and record all cultural resources consistent with standards in the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (National Park Service 1983). Class III inventory is critical when we need to know precisely what cultural resources exist in a given area, and the BLM and their regulatory counterparts in State Historic Preservation Offices, have developed policy that describes when a Class III inventory is required for the purposes of compliance with the NHPA. Today, most inventory work done on the public lands falls under the Class III definition, even though, to date, only some 10 percent of the public lands have seen much systematic archaeological survey.

A large project, particularly one that has the potential to impact more than a hundred acres, including those that are truly "landscape scale," may employ all three strategies: a Class I inventory, or overview, to see what is currently known about the area (which is typically funded by the agency itself); a Class II inventory to explore data gaps identified in the Class I overview; and a Class III inventory of the "project footprint," or area of potential effect, including areas of direct impact or ground disturbance (and rarely areas of indirect impacts). Class I inventories are sometimes confused with "literature searches." The BLM requires a literature search to identify previously recorded sites prior to the initiation of field survey for all projects. In rare instances, the BLM will require a Class II, targeted inventory, of areas of potential direct effects. Class II inventories are mainly used today to inform a staged approach to impacts analysis, such as a targeted survey to help determine least impactful routes for power lines, or to identify site locations that need additional protections during controlled and planned burns for vegetation restoration.

How well has the Class I, Class II, Class III system worked for the BLM? If site recordation alone is the metric for success, then the more than 250,000

sites found to date on the public lands would suggest this is an effective system. If the criteria for success include how well cultural resource inventory has served to inform BLM land use planning, the story is very different. In the late 1970s, the BLM expected that management plans would be updated as new types of land uses were proposed. That meant Class I inventories would also be updated, and, perhaps, that Class II inventory would have been undertaken to target research and management concerns raised in those Class I overviews. This is not exactly the way things have turned out.

Around 2000, the Bureau began an ambitious program to revise each and every land use plan. We should have seen Class I inventories updated from the 1970s and 1980s. Instead, citing funding limitations, BLM did not update its Class I inventories, and some 30 years of Class III inventory efforts were often left unsynthesized. Class II inventory was very rarely employed. Most, if not all, of the recently revised land use plans describe the deficiencies in archaeological survey and inventory in detail. The plans commit the BLM to addressing these deficiencies by employing a Class III inventory strategy to identify cultural resources on a project-by-project basis, or as the BLM usually puts it, "on a plan implementation level." Hence, Class III inventory has become the go-to cultural resource management tool in BLM's toolkit, and the first choice of inventory method when industry picks up the tab. And, not surprisingly, the BLM's primary measure of how well the agency is managing resources has become the number of sites recorded and the acres of public lands surveyed to a Class III standard, which the BLM reports each year in its annual report to Congress (the BLM's Heritage Program Annual Report). What is not widely known, however, is that internal BLM accounting differentiates between sites recorded and acres surveyed as part of a federal undertaking (that is, work done to satisfy NEPA and Section 106 of the NHPA) and sites recorded and acres surveyed strictly for the purpose of inventorying the public lands (that is, work done to satisfy Section 110 of the NHPA). Even though the work done in both instances is completed to the same exacting recording standards, inventory work for compliance purposes – Section 106-mandated work – is not currently regarded as inventory for the sake of meeting Section 110 requirements. The reasons for this distinction are complicated and rooted in the BLM budgeting process. Suffice it to note here that this dual inventory standard may have contributed to the failure to update Class I inventories (which would have had to have been supported with scarce internal BLM funding), and may have hindered use of the extensive databases supported by the BLM, which we describe in the following section.

Data-sharing agreements: a bond between BLM's state organization and the SHPOs

The BLM's initial involvement in cutting edge descriptions of archaeological landscapes has largely given way to the day to day demands of using the public lands. The Bureau's archaeologists, working hard to meet the NHPA

and NEPA workload, have spent decades grinding out thousands of Class III inventories and feeding site forms and reports to State Historic Preservation Offices (SHPOs) across the West. Both the SHPOs and the BLM have benefitted greatly from this collaboration, which is facilitated by federal law mandating the management of archaeological data at the state level and by the BLM's internal agency structure which is organized around individual states and their field offices. The Bureau contributes large quantities of both data and dollars to what have been described as "electronic site ledgers," built and managed by the SHPOs in each state with extensive public lands. The BLM maintains local databases, often in the form of annotated paper maps, or more rarely, digital data, that private firms are required to consult, while at the same time it has entered into agreements with SHPOs to participate in data-sharing agreements that feed site data into state repositories. These state databases are at different places with respect to containing comparable data from various state and federal agencies. In many states, with some (and sometimes a great deal of) data cleaning and intermediate processing, these databases could support synthetic analyses of the archaeological record of the public lands. However, they are most often used by BLM archaeologists and private consultants alike as a check on where Class III inventory has been completed. The BLM has amassed a database of nearly a quarter of a million sites and directed survey of nearly 10 percent of the public lands, but we have yet to use that information to best advantage.

Where do we go from here?

The BLM and our SHPO partners need to get back to looking at archaeological resources on a landscape scale, a regional scale, and a land-use planning scale covering millions of acres, the same scale as our land management units. That is, we need to get back to the research and management agendas of figuring out what we know now, what we don't know now, and how we should manage for site preservation and protection when we don't have perfect information. And, we need to do this in close collaboration between federal agencies, state regulators, and private industry. Now more than ever, the BLM lands – all the gold on the map – are targets for energy development on an industrial scale in the form of solar energy generating plants, wind farms, oil and gas fields, and new energy transport corridors that crisscross the West. How might we better use the Class III data we have invested so heavily in for Class I purposes? In the following discussion, we highlight examples of two recent kinds of studies that address these critical concerns.

Building a program from the ground up: the Historic Trails Inventory Program

The National Trails System Act has designated 19 National Historic Trails (National Park Service 2015). Together, their routes cross some 5,078 miles of public lands, including many of the areas targeted by the renewable

energy boom. In many ways, the trails put BLM in the same place it was in during in the 1970s with respect to all cultural resources: BLM needs to develop a management plan for each stretch of trail on public lands which will protect the trail trace, its associated historic and cultural resources, and its potential as an educational and recreational resource for the American people. In response to this new challenge, when funds were available through the American Recovery and Reinvestment Act in 2009, BLM contracted for a trail inventory in seven Western states, encompassing portions of the Oregon and California Trail, the Pony Express Route, the Mormon Trail, the Old Spanish Trail, and El Camino Real de Tierra Adentro. The challenge was not only to describe the historic resources and sites associated with the historic use of the trails, but also to identify the trail routes and their viewsheds – what the pioneers saw, what they might have seen, and what they left behind. In other words, the contractors needed to identify the historic trails landscapes. More than 500 miles of trail routes were inventoried (Figure 6.3). More importantly, the program laid out and "road tested" a protocol for investigating historic trails that incorporated Class I,

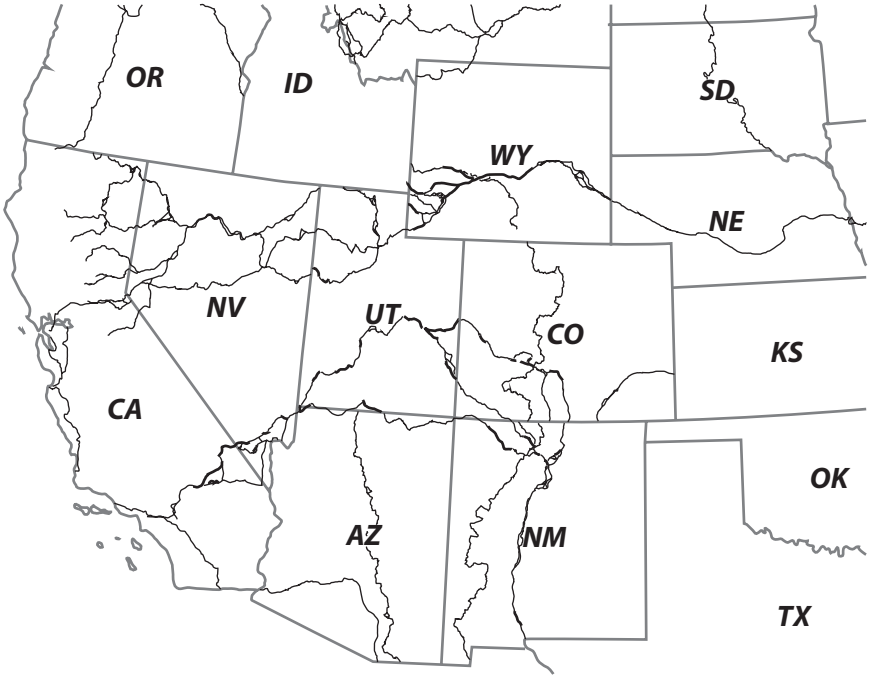

Figure 6.3 Map of the National Historic Trails Inventory Project, with inventoried areas along the Oregon-California National Historic Trail, Old Spanish National Historic Trail, and El Camino Real de Tierra Adentro National Historic Trail shown as thicker lines

Source: AECOM 2012

Class II, and Class III inventory, and included an inventory of landscape and setting values (AECOM 2012). The thorough archival search, historic map evaluation, trail route modeling, and field studies told BLM what we know, and what we don't know, about national historic trail traces on the public lands. We now have a foundation for management, not simply an intensive inventory. We know where we need to target additional field survey, where additional archival research might assist in developing management goals, where development is creating the greatest risk to trail resources, and where we can facilitate public interest in and wise use of trail resources on the ground and through off-site interpretation and exploration.

A hard look at what we have: the Southern New Mexico Cultural Resources Sensitivity Model and the research context for the Rex/Entrega pipeline, southern Wyoming

In preparation for the high volume solar and wind development expected in southern New Mexico, BLM contracted with Statistical Research, Inc. to use the massive New Mexico Cultural Resources Information System (NMCRIS) database to model cultural resources sensitivity in the southern half of New Mexico (Figure 6.4). While New Mexico's archaeologists are very proud of our state-of-the-art online archaeological database, it was becoming increasingly clear that we didn't know what was actually in the

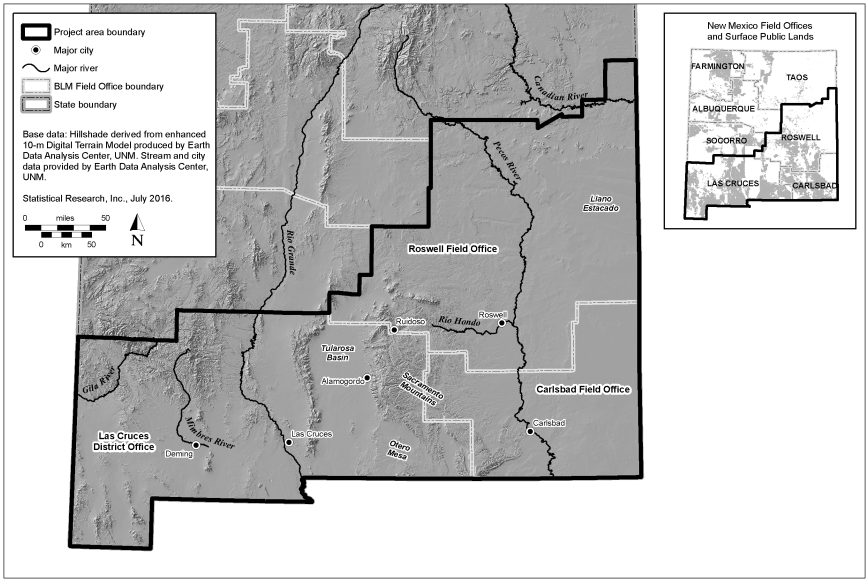

Figure 6.4 Southern New Mexico sensitivity modelling project area, Las Cruces District and Pecos District

database – or what archaeologists got when they did a file search. What inventory projects and sites were there, what was missing, what did the backlog consist of, which areas were heavily inventoried, and which were under-inventoried, in short – what were the strong and weak aspects of the database, where were the gaps, and how could we fill them? Additionally, we wanted a model based on geographic and cultural areas that would help us to best locate the big projects we were expecting.

The resulting model offers a high resolution picture of the archaeological record in southern New Mexico (Heilen et al. 2013). Figure 6.5 shows the regions defined and analyzed in the model (Heilen et al. 2013: 16). While the model was a big step in moving forward with landscape level planning, the information we gained about the strengths and weaknesses of not only the database but also the process of building it was even more critical.

Considering the shaky state of federal funding, these kinds of efforts might be more reliably funded by proponents as part of large projects. An excellent example is the archaeological research context prepared as part of the mitigation of adverse effects for the Rockies Express/Entrega Pipeline in southern Wyoming (Burnett et al. 2012). Here, the Wyoming Cultural

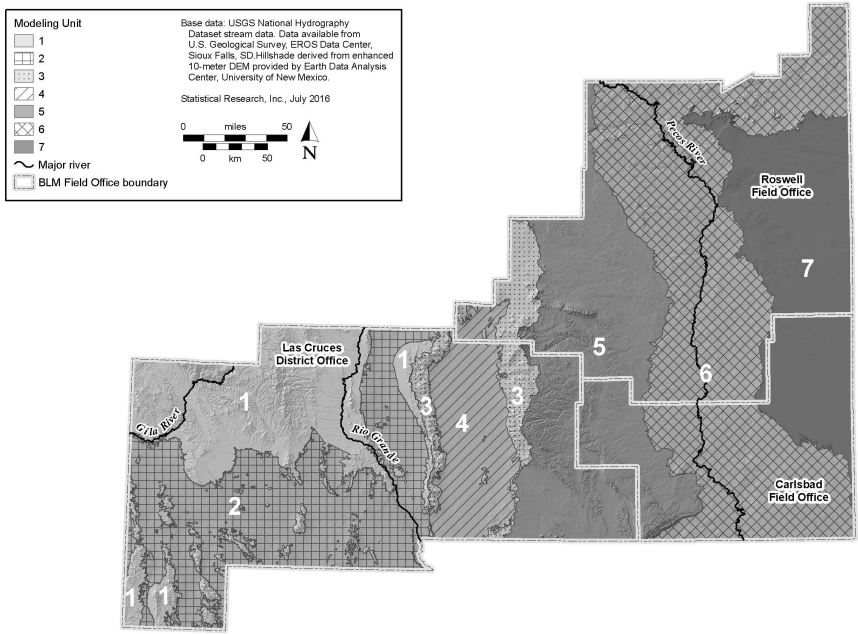

Figure 6.5 Southern New Mexico sensitivity modelling project modelling Units 1–7 (Southwestern New Mexico upland, Southwestern New Mexico lowland, Tularosa Basin upland, Tularosa Basin lowland, Sacramento Section, Pecos and Canadian River Valleys, and Llano Estacado, respectively)

Source: Heilen et al. 2013: 16, Figure 3

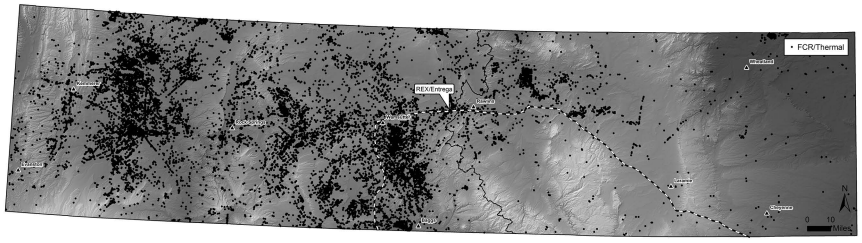

Figure 6.6 Fire-cracked rock/thermal feature sites in southern Wyoming
Source: Burnett et al. 2012: 134, Figure 6.22

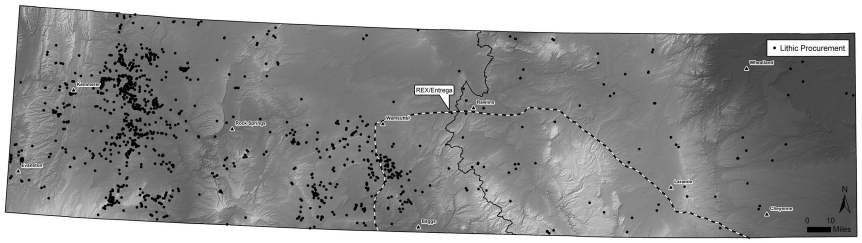

Figure 6.7 Lithic procurement sites in southern Wyoming
Source: Burnett et al. 2012: 134, Figure 6.23

Records Office database served as the raw material not only to model, but to verify long-suspected differences in human Great Plains versus Wyoming Basin adaptations. Figures 6.6 and 6.7 show, respectively, the distributions of archaeological fire-cracked rock/thermal features and lithic procurement sites in a broad swath across southern Wyoming (Burnett et al. 2012: 134).

Conclusions: looking ahead

Cultural resource management has always tried to answer both "science questions" and "management" questions. We've invested heavily in data and technology that have the capacity to address both. We need to invest in using what we already have, to stop and periodically take the measure of where we are and where we want to go. We need to expand our understanding of what a Class I inventory can accomplish. A Class I inventory does not have to be a narrative overview of what happened when in our area. It can also be a thorough evaluation of an entire database, as we have seen in the Southern New Mexico Cultural Resources Sensitivity Model example, which yielded a model of site resources that can be updated with real time data as the SHPO database is populated. A Class I inventory can create an extensive, digital archive of historic documents, maps, and topographic

information, as well as viewshed models, as in the historic trails example. These databases can guide targeted Class II inventory that might alleviate the necessity for redundant survey efforts as landscape level plans are drawn up. And, perhaps of most interest to many outside the BLM, work done in the course of developing a Class I inventory can yield new information about the archaeological record, as is the case in our Wyoming example. Not only can a good Class I inventory tell us what we already know, and what we don't know and need to learn, it can also tell us things we didn't know. Class I inventories are as essential a part of the mandate to inventory all the public lands (Section 110 of the NHPA) as they are of good compliance practice (Section 106 of the NHPA). We need to share the burden of synthesis and overview between federal agency archaeologists and contracting consultants, and we need to make the results of the Class I inventories, including the cleaned up databases they might yield, coordinate how we direct additional Class II and Class III inventory. These strategies are part of the same system; what has become disconnected over the past few decades needs to be reintegrated and coordinated in the coming years. Now that a generational change is upon us and the NHPA, NEPA, and FLPMA babies are heading into the sunset of their careers, new generations of archaeologists need to help us use our 40 years of data to define what archaeology should look like on all the gold on the map. The BLM's future lies in embracing all aspects of cultural resource management, which includes managing and deploying inventory efforts wisely, managing and using data effectively, including our collaboratively developed "electronic site ledgers," making the most of what we have already done, and making the most of our human capital. As we say in BLM, "thank you for your interest in our public lands."

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7 Travels among the states

Noting accomplishments and identifying challenges for the twenty-first century

Paul A. Robinson

An introduction from Point Judith Pond, Rhode Island

Spread along Rhode Island's south coast are shallow coastal lagoons, or as they are commonly called, "salt ponds." Separated from Long Island Sound by barrier beaches, the ponds provide excellent habitat for shore birds, shell fish, fin fish, and many other marine and terrestrial plants and animals. The lands near them have a rich and dense archaeological record as indigenous people have used the coastal edge and its bountiful resources for thousands of years. Collectively, the salt ponds and their adjacent lands, form one, of more than sixty, Rhode Island state historic preservation planning contexts, "The Indian Use of the Salt Pond Region Between ca. 4000 B.P and 1750 A.D." (Robinson 1987). This historic context was established in 1987 as part of the State Historic Preservation Office (SHPO)'s statewide planning process for the protection of historic and archaeological resources.

On Point Judith Pond, the largest and most biologically rich of the coastal salt ponds, is the Salt Pond archaeological site. Acquired by the state with federal funds in 2013 as an Archaeological Preserve, RI 110 is one of the best-preserved Late Woodland village sites on the eastern seaboard of the United States. Covering about 53 acres, the site includes the well-preserved archaeological remains of residential structures, granaries, refuse areas, human burials, and ceremonial areas. Together, these comprise an archaeological landscape of national significance. The Narragansett Indian Tribal Historic Preservation Office has identified this place as an "ancient medicine compound of the Turtle Clan of the Narragansett Indian Tribe" (Harris 2007; Morenon 1991; Waller 2000, 2015).

While the State Historic Preservation Office and Tribal Historic Preservation Office (THPO) knew about the archaeological sensitivity of this area in the 1980s, it wasn't until the place was studied by Cultural Resource Management (CRM) archaeologists, as required by federal and state permitting authorities, that the site's great complexity and its national significance became clear. But for the National Historic Preservation Act (NHPA), the establishment of SHPO and THPO offices, and the development of an

experienced and knowledgeable CRM professional workforce, the site would now be destroyed, the land covered with a dense housing development.

The creation of the Salt Pond Archaeological Preserve is a noteworthy accomplishment, made possible by the persistent efforts and solid accomplishments of multiple and diverse partnerships among entities both within and outside the archaeological community, including the project developer who over the course of more than a decade funded the required archaeological studies that documented the site's significance. It is, however, not without some problems of implementation, as described later in the chapter.

I began this essay in Rhode Island (RI) as I had the good fortune to work for the RI SHPO from 1979 to 2011, and as the Principal State Archaeologist beginning in 1982. I'm most familiar with the archaeology of New England, and the Northeast. I can describe and assess state programs in these regions with some confidence. I'm less familiar with all that's of concern and importance west of Buffalo, and south of Binghamton, New York. It is clear, however, even to this long-time New Englander, that the accomplishments of all the States, under the collaborative banner of CRM, are impressive in their scope, in their contributions to the discipline of archaeology and to our understanding of who we are – as a nation and as individuals. I can't cover all the accomplishments of all the state programs in this chapter, nor can I discuss any of them comprehensively. I can, however, represent some of what some have done, as representative of their larger accomplishments, and as indicative of some of the current efforts to develop ways to meet the challenges that confront the preservation, protection, and appropriate uses of cultural resources in the twenty-first century.

The National Historic Preservation Act: the basis of the national program of SHPO offices

The NHPA provides the statutory foundation for the SHPOs and for almost all the CRM projects conducted throughout the country (see, e.g., Chapters 1 and 2, this volume). Enacted in 1966, its passage profoundly changed the scope and extent of archaeology in the United States by requiring that federal agencies take into account the effects of their actions on archaeological and historic sites, properties and places, and by requiring that they accept stewardship of historic places and archaeological sites under their control. In recognition of the singular importance of the NHPA, the Society for American Archaeology participated in *Preservation 50*, the nationwide celebration of the fiftieth anniversary of the NHPA during 2016. As part of that celebration, the SAA's *Making Archaeology Public Project* posted videos from the states highlighting some of their accomplishments. The SAA noted that because of the requirements of the NHPA,

> . . . hundreds of thousands of archaeological sites have been found, recorded, and, in many cases, preserved in place. In those cases where

> sites could not be left in place because of the larger need for highways, energy, housing, and other trappings of modern life, sites have been scientifically excavated and analyzed. The reports containing the results of these analyses preserve the information those places contained and the knowledge we have gained from them for future generations.
>
> All of the archaeological work that is carried out to meet the requirements of the NHPA creates a vast reservoir of understanding about life in the past and yields a wealth of amazing stories about our American experience.
>
> (Society for American Archaeology 2016)

Although archaeologists and federal agencies were slow to appreciate and acknowledge the implications and requirements of the NHPA (Chapter 1, this volume; Davis 2009: 27), its importance to CRM cannot be overstated. Its findings, declarations, and policies should be, as Lynne Sebastian (2009: 8) noted, "the guiding principles for policy decisions about archaeological resource management." Sebastian (2009: 8), drawing on her many years of experience as an archaeologist, as the New Mexico SHPO, and as a member of the Advisory Council on Historic Places, also observes that "some people making those decisions, and even more of those who provide the data and recommendations on which such decisions are based appear to have lost sight of that intent." Perhaps then, we should remind ourselves regularly of these guiding principles.

The findings, declarations, principles, and policies of the NHPA are presented in Sections 1 and 2. Sebastian (2009: 8–10) lists them in her introductory discussion of CRM archaeology. They are well-worth our attention, and as some of us may have "lost sight" of them, perhaps they should be tacked to our bulletin boards, taped above our computers, made pocket-size, laminated and distributed at meetings and conferences.

Section 1 tells us that the "spirit and direction of the nation . . . is reflected in its historic heritage," that the "historical and cultural foundations of the nation should be preserved as a living part of our community life," and that preserving these are in the "public interest." It takes note of increasing development and the threats this poses to the nation's heritage. Importantly, it says that to meet these threats, the federal government should provide leadership in developing "better means of identifying and administering" the nation's historic resources. Section 2 sets forth a general policy framework that acknowledges the job of implementing the goals of the NHPA would be too much for any one entity alone, that forming multiple partnerships among all levels of government and throughout society is essential, that it:

> shall be the policy of the Federal Government, in cooperation with other nations and in partnership with the States, local governments, Indian tribes, and private organizations and individuals to use measures, including financial and technical assistance, to foster conditions under

> which our modern society and our prehistoric and historic resources can exist in productive harmony and fulfill the social, economic and other requirements of present and future generations.

State programs, as they emanate from and are overseen by the SHPOs, rest on the founding principles set forth in Sections 1 and 2. The authority for state governments to establish these offices flows from the NHPA, which assigned the responsibility for administering the state program to the SHPO. The Act required the SHPO, in cooperation with federal and state agencies, local governments, and private organizations and individuals, to direct and conduct a comprehensive statewide survey of historic properties, and to keep an inventory of these properties; it specified that the SHPO identify and nominate significant properties to the National Register of Historic Places; prepare and implement a comprehensive statewide historic preservation plan; provide public information, education, and training, and technical assistance in historic preservation; and consult with federal agencies when their undertakings might affect historic properties.

The principles and policies of the NHPA, as expressed by and through the SHPO programs, structure the remainder of this chapter – they provide a useful organizing framework for discussing the accomplishments of state programs, the challenges they face, and the opportunities that should be taken advantage of in the twenty-first century. Caught up in the daily grind and pressures of project review deadlines, and squeezed, at times, by the none-too-subtle demands of politics and economy, it's all-too-easy to forget that our programs are based on important Congressional findings of fact that provide a sound rationale for our programs, and uplifting statements of national principles and ideals. Working under the pressures of the job, it's helpful to remind ourselves that the planning, regulatory, and policy frameworks that establish the goals and parameters of our programs flow from the elegant statements and principles of the NHPA.

In the beginning – in the late 1960s and 1970s, states were faced with, among other things, the need to enact enabling legislation, establish historic preservation offices and programs, hire professionals in history, historical architecture and archaeology, establish standards and guidelines for archaeological survey, and develop explicit methodologies and frameworks for identifying, evaluating, and protecting their historic resources. They had to develop a rigorous and replicable means of deciding what sites are significant and eligible for listing on the National Register of Historic Places, and which are not. McManamon (Chapter 1, this volume) describes well the emergence and ensuing growth of these programs – at federal agencies and in the states, as a "national network of CRM archaeologists" began to take shape.

Some states were in better shape than others to do this. Some already had well-established archaeological research programs. Although these required retooling and shaping to meet the new regulatory requirements of the NHPA, with decades of solid research, they were in a good position to meet those needs. In the Northeast, for example, State Museums in New York and Maine

had long-standing, and extremely valuable, series of publications and research projects. In the Great Basin, Great Plains, Midwest, and Southwest, well-established research programs at universities, state museums, or state historical societies, and federally mandated salvage programs had resulted in the compilation of regional culture histories and had recorded many sites. In Arkansas (McGimsey 1972) a strong university-based research program and a dedicated and effective avocational society existed. Some states, however, began with much less. Rhode Island, for example, had only a poorly organized avocational community and an academic community with little interest in the state's prehistory. It was not until the mid-1970s that the SHPO and Rhode Island College hired prehistorians who began the process of developing a state program.

For all the states, however, regardless of the maturity or sophistication of their programs, the NHPA offered a series of challenges and opportunities. It declared that current programs were inadequate to meet the threats of ever-increasing development and that new means were required to identify and administer the nation's historic resources. The challenge and the opportunity were to *comprehensively* inventory and interpret a whole new range of archaeological sites and places. And connected importantly to that, as Charles R. McGimsey III, one of the founders of CRM and the first Director of the Arkansas Archeological Survey, would say, was the need to make this new archaeology accessible and understandable by the "public" (McGimsey 1972).

Affirming the principles and meeting the goals of the NHPA

> Congress finds and declares that the spirit and direction of the Nation are founded upon and reflected in its historic heritage . . . [and that] historic properties significant to the Nation's heritage are being lost or substantially altered, often inadvertently, with increasing frequency.
>
> (NHPA, Section 1, (b) (1) (3))

In his essay, *The Sense of Place*, the American novelist, essayist, and historian, Wallace Stegner, wrote about places and of the importance of being "placed," of knowing a place well and caring deeply for it. Stegner urged us to slow down, to take the time to learn about the places we live in, and to become good stewards:

> . . . a lot of us," Stegner wrote, "have never stayed in one place long enough to learn it, or have learned it only to leave it . . . it is probably time we looked around us instead of looking ahead. We have no business . . . being impatient with history. We need to know our history in much greater depth.

Places, Stegner thought, could teach us about ourselves, if we give them a chance, and in learning about our places and ourselves, we would become better caretakers. A sense of place would give us a chance, he thought, of

making a "sustainable relationship with the earth. Neither the country nor the society we built out of it can be healthy until we stop raiding and running, and acquire a sense not of ownership but of belonging" (Stegner 1992: 204–206).

Historic properties, resources, and sites, are above all else, places. Places teach us valuable lessons about ourselves. They ground us. They give us depth. They enrich our lives. They give us a sense of belonging. They embody the spirit of who we are and who we've been. They hold the evidence of those whose contributions to the nation's spirit have been ignored or denied, who have struggled mightily, and continue to struggle, to be accepted as part of the citizenry. When we lose our places, we lose part of our selves, and when a nation loses its places, its spirit is diminished.

It would be naïve to think that Congress intended all of what Stegner saw as "raiding and running" stop. Haphazard development and operations haven't stopped, and in some ways the threats to our historic places and to the health of the nation, have increased since he wrote the essay. But Congress did, with passage of the NHPA, intend that we honor and strengthen the spirit of our nation by becoming better stewards of our places. The sentiment behind the law urges that we take the time to understand and appreciate the history our places hold. We should strive to make our historic places a "living part of the community." The programs and projects in CRM don't always achieve these goals. Sometimes we facilitate the "raiding and running" of others. Other times, the review process excludes or fails to seriously consider the interests of indigenous people whose land was taken forcibly and cruelly. Often, though, what we do *does* help, in important ways, a receptive and knowledgeable people understand more about themselves and where they live. When CRM does that, it contributes to the health and vitality of the spirit of the nation by affirming and broadening its relevance and meaning to all people.

The Ancient Ohio Trail

I don't know if Congress had southern Ohio on its mind when it declared that the spirit of the nation is reflected in its historic heritage, but the spirit that underlies all that has developed since that region became the United States, is palpable in southern Ohio. Spread across hundreds of miles of hills and valleys, ridgelines and rivers, farmlands, forests, and small towns, is "the largest concentration of geometric earthen architecture in the world," including symmetrical and formally-designed figures, hilltop enclosures, animal effigies, and ancient roadways. The Trail includes some of the better-known sites in North America: Fort Ancient, the Great Serpent Mound, the Newark Earthworks, the Hopewell Ceremonial Earthworks and Fort Hill (Lepper 2005; Milner 2004).

With funding from the National Endowment for the Humanities, many organizations and private landowners joined together to create a website

and a system of trails: *The Ancient Ohio Trail* (Ancient Ohio Trail 2016). These include the Ohio History Connection, formerly the Ohio Historical Society (where the Ohio SHPO is located); the Hopewell Culture National Historical Park in Chillicothe; the Newark Earthworks Center, The Ohio State University at Newark; The Arc of Appalachia Preserve System; Center for the Electronic Reconstruction of Historical and Archaeological Sites (CERHAS) at the University of Cincinnati; and The Dayton Society of Natural History (The Ancient Ohio Trail 2016).

The Ancient Ohio Trail is both the name of a many-layered, very friendly and informative website created by the CERHAS and a physical system of hundreds of miles of regional highway and walking trails connecting the major sites and places. The website helps residents and visitors appreciate the immense scale of the earthworks. It provides background information of their meaning to the people who made them. Included are maps and photographs, short videos with digital reconstructions of the earthworks and interviews with non-Indian and indigenous scholars and speakers, examples of artifacts and ancient artwork that can be found at some of the museums and interpretive centers at the sites, a lengthy and comprehensive scholarly bibliography, and printable guides to some of the sites. The website also includes tourist information about several of the historic towns including lodging, shopping, dining, and recreation with links to county convention and visitors bureaus.

When I toured southern Ohio in the summers of 2013 and 2014, it was remarkable to see how thoroughly many of these places had become part of the living community: young day campers journaled atop the Eagle Mound inside the Great Circle at Newark; senior citizens took guided-tours, scores of people sat and strolled in appreciative contemplation of the Great Serpent Mound at the summer solstice; a couple was married at Fort Hill; an archaeological field school studied a small part of Fort Ancient. There were local residents and visitors from several countries and many states. In its careful and thorough presentation, its inclusivity of peoples and diverse "publics," and its strong web of partnerships at all levels of government and private landowners, the *Ancient Ohio Trail* conveys and contributes to the spirit of the nation as it teaches people about the history of their places and the ways of life of the indigenous people whose spirit of place still fills the landscape.

The African Burial Ground National Monument, New York City and the Jacksonville Chinese Quarter, Oregon

The quality and content of the nation's spirit is not immutable. Rather, it is organic and changeable, as for example, when formerly excluded groups – African Americans, Asians, women, and indigenous people – to name just some – successfully argue to have their rights and ways acknowledged and included in the nation's polity and culture. Perhaps the authors of the NHPA recognized this when they said: "the historical and cultural foundations of

the Nation should be preserved as *a living part of our community life* and development in order to give a sense of orientation to the American people." The African Burial Ground in lower Manhattan and the Chinese Quarter in the small town of Jacksonville, Oregon, are just two examples of how CRM projects at the state level can be part of this organic process. Their results sometimes change our understanding of the history that "reflects" and fills the spirit of the nation.

The unearthing of human burials in 1991 from a large African burial ground in the heart of modern Manhattan necessitated that the General Services Administration suspend construction of a new federal building as the New York State Assembly, the New York City Landmarks Commission, and the descendant community came together to argue for its study and preservation. The burial ground, estimated to contain between 15,000 and 20,000 burials of free and enslaved African people, covered about 6.6 acres, and after years of urban development and filling, lay more than 20 feet beneath the modern street surface. The ensuing study of the site, by Howard University and John Milner and Associates focused on the daily lives of enslaved people in New York City and the cultural backgrounds and origins of people in the cemetery. Among other things, it brought to light ways that people in the north – in New York City – resisted enslavement and it revealed how some people became African-American (Perry, Howson and Bianco 2006).

In 2003, Congress appropriated funds for the design of a monument where the remains of those who were unearthed were reinterred. A National Park Service (NPS) visitor's center now provides interpretive programs – about the burial ground itself, and about the larger institution of slavery as it encompassed the greater Atlantic Ocean basin. The project altered the way the nation's history is presented. In 2005 the New York Historical Society opened its first exhibit on slavery. The historical, cultural, and bioarchaeological findings, and the oral testimony of descendants, are documented in books, film, and exhibits. At the visitor's center and monument – at the place of burial and reburial, visitors can learn about the harsh and undeniable significance of slavery – to the City of New York and to the nation as a whole, as revealed by the archaeological interpretation of some of the people who lived through it, and by the living testimony from members of the descendant community (National Park Service 2016a).

In Oregon, archaeological investigations in 2011, along the path of a proposed walkway in the Jacksonville Historic District, uncovered the intact, buried remains of a late nineteenth-century house. The house had been part of Jacksonville's Chinese Quarter, a neighborhood of working Chinese people until the early twentieth century. Using the SHPO database, archival sources, and information from earlier archaeological studies at the house site, investigators from Southern Oregon University determined that the house had burned in the early morning hours on September 11, 1888. The fire created a time capsule of that moment, and fill deposited in later years preserved the integrity of those deposits. Archaeologists recovered a wide

range of artifacts representing the full range of the residents' daily lives – fragments of furniture, utensils, coins, ceramics, botanical remains, animal bones, gaming pieces – were among the more than 30,000 artifacts found at the site (Rose and Johnson 2012).

The project involved many organizations. Overseen by the Oregon Department of Transportation, its partners included the Oregon SHPO, the Southern Oregon Chinese Cultural Association, the Southern Oregon Historical Society, Southern Oregon University's Anthropology Department, the University of Oregon's Museum of Nature and Cultural History, and the City of Jacksonville. Exhibits, publications, and a film prepared for the SAA's *Making Archaeology Public* initiative, "*Rising from the Ashes: the Archaeology of the Jacksonville Chinese Quarter*," tell the story of an immigrant people who worked in the local gold mines helping to build the local economy and infrastructure, yet were denied the rights to their own mining claims and to other property rights (Oregon Making Archaeology Public Program 2016).

People in today's southern Oregon Chinese-American community contributed to the project by explaining how some of the artifacts were used and by relating stories they'd heard from elders that described the discrimination that people suffered. In these ways, the material record connected people in the community to their past, deepening their sense of place while breathing new life into the "spirit of the nation." Jeresa Hren, a Board Member of the Southern Oregon Chinese Cultural Association, explains in the film how Chinese people had left Jacksonville in the early twentieth century because of discrimination, and that some people today were surprised to learn that there was once a Chinatown in Jacksonville. Without citing the lofty sentiments of the NHPA, she conveys its principles well. The Chinese Quarter project, she says, has helped create a thriving tourist economy where people come to enjoy and learn about the area. "We are," she says, "very happy about that" (Oregon Making Archaeology Public Program 2016).

> Congress finds and declares that the increased knowledge of our historic resources, the establishment of better means of identifying and administering them, and the encouragement of their preservation will improve the planning and execution of Federal and federally assisted projects and will assist economic growth and development.
>
> (NHPA, Section 1, (b) (6))

Hundreds of thousands of archaeological sites and other cultural resources have been recorded since the NHPA was enacted. Administering and making sense of such enormous numbers is a major challenge for all state programs, as is the need to develop still better ways of identifying sites – both before projects are proposed and in the early phases of project planning. The burgeoning numbers of sites comes not just from the project review requirements of the NHPA, but also from philosophical changes about

what's worth knowing and saving. In the 1960s and 1970s, people in the historic preservation community began to argue, that just as ecologists had determined that protecting entire ecosystems was important, so too were cultural resources connected in systemic ways that required holistic study. This systems approach required a comprehensive understanding of the large and small, the complex and the simple, and the extraordinary and the ordinary – it required a statewide planning process that included all kinds of archaeological resources, on the land and under the water (Chapter 2, this volume). Examples from Arkansas, New Mexico, California, and Wisconsin illustrate how this approach was developed in CRM.

The Arkansas Archeological Survey

The Arkansas Archeological Survey was created by the Arkansas General Assembly in 1967. It was the first comprehensive, statewide archaeological survey program in the country. The Survey was charged with conducting "fundamental research," on the state's past, to manage the information about these sites, and to work with the public to preserve and interpret the state's archaeological resources (Green and Hester 2000). The founder and first director of the Survey was Charles R. McGimsey III, a scholar and CRM proponent of national importance, whose book *Public Archaeology* (1972), was required reading in graduate programs throughout the country. McGimsey, with Hester Davis, Arkansas's first State Archaeologist, created a program in Arkansas that clearly addressed the Congressional finding that the nation needed better means of identifying and administering its historic resources.

The Survey's organizational structure includes the entire state, with a central, coordinating office at the University of Arkansas at Fayetteville, and ten region-based research stations, eight at universities, two at state parks. The coordinating office houses the State Archaeologist, a publications program, and the central repository for information on the state's 48,000 recorded archaeological sites. The office also holds and maintains archaeological collections coming from state and federally funded projects (Arkansas Archeological Survey 2016). The organizational structure encourages cooperation among academic researchers, government agencies, and the public throughout the state. The Survey has been both example and inspiration to archaeological efforts throughout the country with its regional survey and planning models, its publications series, its public education programs and training, and its concern for data management and collections curation.

Pattern recognition in New Mexico and California

It's important to have not just an effective and replicable methodology for identifying sites on the ground, but to also have the means for identifying spatial and temporal patterns from the inventoried sites, so that

administrators and other government officials can make sound data-based decisions about their management. Examples from state programs in New Mexico and California illustrate this process of pattern recognition.

In New Mexico, the number of recorded archaeological sites has grown enormously over the years, from about 10,000 before the NHPA was passed to 190,000 in 2015. Information about these sites is available at the SHPO office, in the Archaeological Records Management Section of the Department of Cultural Affairs. New Mexico's Cultural Resources Information System uses a Geographic Information Systems platform to enable researchers and government officials to identify spatial and temporal patterning. This methodology is described in a film created for SAA's *Making Archaeology Public* initiative. In "*Patterns in Time: Big Data as a Window to the Past*," data on the distribution of obsidian is used to map peoples' "home ranges," and ancient migration routes. These spatial patterns, as they change over time, are interpreted in collaboration with Puebloan people to explain the ecological and social factors that influenced the regional movements of ancient people (New Mexico Making Archaeology Public Program 2016). Similar collaborative work with indigenous people in California uses information obtained from the distribution of obsidian and tribal oral history to provide ways of looking at the interaction among groups and the expression of their territories (California Making Archaeology Public Program 2016).

Wisconsin's Maritime Trails

Many states have devoted considerable efforts toward identifying and managing their underwater shipwrecks. In states such as Rhode Island, Florida, Maryland, and North Carolina, these efforts intensified after passage of the Abandoned Shipwreck Act in 1986 (Robinson and Taylor 2000; Runyan 2011). This Act said that abandoned shipwrecks within U.S. territorial waters were within the purview of existing historic preservation legislation. In doing that, it enabled the states to prepare guidelines and requirements for their study (Babits and Van Tilburge 1998; Catsambis et al. 2011; Davis 2009: 34).

Underwater programs in the nation's coastal waters and Great Lakes have identified thousands of sites in partnership with the avocational and academic communities. Wisconsin, for example, with its 860 miles of shoreline, has recorded 700 wreck sites within Lakes Superior and Michigan. The Wisconsin Historical Society (SHPO) has partnered with the University of Wisconsin-Madison Sea Grant Institute and federal, state, and local agencies, Chambers of Commerce, private businesses, non-profit organizations, and individuals to create the *Maritime Trails* program. The program's interactive website encourages divers to visit the sites, provides educational material concerning site protection, provides an online database, and conducts archaeological surveys to identify new wreck sites (Wisconsin Historical Society 2016). In forming these multiple partnerships, the state program

provides an administrative framework for the management of its underwater resources and adds well-sourced and accurate information to its shipwrecks inventory.

Partnerships across state lines, with the private sector, and with Indian tribes

> It shall be the policy of the Federal Government, . . . in partnership with the States, local governments, Indian tribes, and private organizations and individuals to use measures, including financial and technical assistance, to foster conditions under which our modern society and our prehistoric and historic resources can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations.
>
> (NHPA, Section 2 (1))

We've seen in the short case studies and examples from various state programs summarized in the last section, that partnerships with entities and individuals across the spectrum of public and private interests is advantageous and essential. The need for partnerships and their value to historic preservation programs are at the heart of the NHPA. Building and maintaining mutually beneficial relationships with others is central to many aspects of state CRM programs. In some instances, by working together, States can achieve a more thorough understanding of regional events and processes. And, as most land in the U.S. is privately owned, it is of great value to find ways to involve the private sector in site protection. Achieving "productive harmony," among diverse and competing interests and peoples, some of whom hold fundamentally different ideas about the best use of the archaeological record, can be elusive and difficult to achieve. Working at these partnerships, however – discussing, negotiating, and finding common ground – is absolutely essential to the success of a program. We can't achieve our goals alone, we need to work together, and in combining our efforts with others, we sometimes surpass what we had set out to accomplish.

Regional partnerships among multiple state programs: the Trail of Tears National Historic Trail

In the spring and summer of 1838, the U.S. Army, with the help of state militias and volunteers, forcibly removed more than 15,000 Cherokee people from their ancestral homelands in Alabama, Georgia, North Carolina, and Tennessee. Held that summer in internment camps in Tennessee, they were forcibly marched through the winter over 1,000 miles to Indian Territory, in what is now Oklahoma. Thousands died along the way of disease and starvation (Thomason and Parker 2003).

In 1987, the U.S. Congress designated more than 2,000 miles of two of the main historical Cherokee removal routes as the Trail of Tears National

Historic Trail, running through nine states: North Carolina, Georgia, Tennessee, Alabama, Kentucky, Illinois, Missouri, Arkansas, and Oklahoma. In 2009, after the NPS completed an additional study, the length of the Trail more than doubled, with the addition of another 2,845 miles of small trail segments and longer routes (National Park Service 2007).

The Trail is administered by the National Park Service in a cooperative agreement with the Trail of Tears Association, a non-profit organization based in Oklahoma. Established in 1993, the Association's mission is broad and encompassing – to help the NPS, and others, protect and preserve the Trail's resources and to promote public awareness of the Trail's legacy and the effects of the U.S government's Indian Removal Policy on the Cherokee and other tribes, including the Chickasaw, Choctaw, Muscogee Creek and Seminole. Its Board of Directors includes representatives from each of the nine Trail of Tears states and from the affected federally recognized Tribes. With chapters in all nine states, the Association is the umbrella organization for many partners, including individuals, local historical societies and land trust organizations, towns and municipalities, and State Historic Preservation Offices (The Trail of Tears Association 2016).

Multiple Property Documentation Forms (MPDF) have been prepared at different geographic scales to organize and interpret a vast array of archaeological sites and historic places along the paths of the trails. The all-encompassing Trail of Tears MPDF (Thomason and Parker 2003) provides a rigorous scholarly and planning framework for identifying, evaluating, and protecting the Trail's archaeological and historic resources across the entire nine-state region. This MPDF, with complementary studies at the state level (see for example, the MPDF prepared for Missouri by Tiffany Patterson 2014), documents the wide range of archaeological sites, structures, features, and places within the Trail Corridor and develops a typology for their evaluation and interpretation. Some examples of "property types" include fort sites and emigration depots; roadbeds; ferry crossings, landings and fords; campsites; buildings, structures and building sites; gravesites; and disbandment sites. The MPDFs also provide multi-state and state-level contexts for evaluating the eligibility of historic and archaeological resources to the National Register of Historic Places (Thomason and Parker 2003; Patterson 2014).

The State programs have supported and facilitated archaeological studies at sites illustrative of these "property types," including a cabin site along the Benge Trail in Alabama; the farmstead of a Cherokee family in North Carolina; Fort Armistead, a major internment camp in Tennessee; campsites along the southern branch of the Trail in Illinois; the Bridges Tavern and the "Wayside Store" in Illinois; and in Arkansas, the Arkansas Archaeological Survey identified probable removal "corridors" (Blackburn 2012; Center for Archaeological Investigations 2016; Freeman 2012; Horne 2006).

All these efforts and products – the feasibility and planning studies, the compilation of MPDFs, the studies of specific archaeological sites – contribute to an enormous body of information that's made available to "many

publics," in many forms and in many places. The national call for effective public education and outreach programs for archaeology and other cultural resources made by McManamon (1991) and others in the 1980s and 1990s has come to fruition here. In 2012 the Cherokee Nation bicycle team rode the northern route, keeping alive the "Remember the Removal" bicycle ride started in 1984 (National Park Service 2012). At the state level, the Georgia Chapter of the Trail of Tears Association used funding from Georgia Humanities to support the development and distribution of educational materials. This "traveling trunk" program, prepared in consultation with indigenous people, supports Georgia's educational requirements for teaching American Indian history and culture (National Park Service 2012). At the local level, the NPS works with officials and organizations throughout the nine-state region to install interpretive signs. In Fort Payne, Alabama, for example, a ceremony was held at the Cabin Site, an archaeological site along the Benge Route (Freeman 2012). At another ceremony, in Coopertown, Tennessee, the Mayor was pleased to see interpretive signs installed. He told an appreciative audience that the town was proud to provide "a comfort stop for the Remember the Removal Cherokee youth annual bicycle riders" (National Park Service 2012 [June issue]: 2). The Town's website gallery documents several years of the annual bicycle event (Coopertown Tennessee 2016). Coopertown's public ceremony, in its synthesis of multiple scales, and in its acknowledgement of multiple meanings held by many diverse partners and interests, is perhaps illustrative of the "productive harmony" our programs seek to achieve. It is a succinct example of what can be accomplished in CRM by working together, across state lines.

Partnerships with private landowners: public stewardship in Iowa

> Strategic partnerships drive OSA's [Office of State Archaeologist] activities across the state. Our central focus is generating the most knowledge, the greatest understanding, and the maximum appreciation for Iowa's past. We work with public and private institutions, organizations, and units of government from small towns to federal agencies to maximize the preservation and appreciation of Iowa's past.
>
> Our shared history, which includes the histories we have inherited from all the people who ever lived in what we today call Iowa, is a nonrenewable resource. Our goal is to learn from it, and honor those who came before us.
>
> (John Doershuk, Iowa State Archaeologist and Director of the University of Iowa Office of State Archeologist (Office of Research and Development 2016))

About 61 percent of the land in the United States is privately owned. The proportion varies considerably, though, by state and region. In many of the western states the fraction of land held by private landowners is much less,

as a high proportion of land is held by the federal and state governments and by Indian Tribes. In Nevada and Arizona, for example, more than 80% of the land is publicly-owned. In other regions of the country, however, most land is privately controlled: in Virginia, roughly 90 percent is privately owned; in Iowa, the figure is 98 percent; in Rhode Island it's 98.5 percent (Eno et al., u.d.; Natural Resources Council of Maine 2016). While working closely with private individuals and other landowners is an important aspect of all state programs, it's instructive to look at some of the many ways that Iowa, a state that is almost entirely privately owned, has worked with landowners to protect important archaeological places.

I stayed for a few days, in the summer of 2013, in a bed and breakfast (B&B) just north of Effigy Mounds National Monument in Harper's Ferry, Iowa. The couple running the B&B maintained several acres of native grassland in front of their house, burning the land yearly, after the nesting season, to keep it healthy. They were deeply interested and appreciative of the land and all that it holds – not just the grasslands ecosystem, but its indigenous history as well. They said that they'd be working with some people in the area to restore a damaged mound near their house, that they'd do this in cooperation with a private landowner in a way that would not harm the site, and that they'd been in touch with the Office of the Iowa State Archeologist (OISA) for advice and counsel. They were strongly connected to the land. They were, to use Wallace Stegner's word, "placed" people. The long history of indigenous people was just one of many aspects of the land they valued. By staying at that B&B and talking with its remarkable owners, I'd stumbled upon a small part of Iowa's stewardship program that brings the OISA, and other institutions and agencies, together and into direct contact with people in all parts of the state.

Public stewardship is an important part of the overall mission of the OISA. The Strategic Plan for the OISA sets forth several goals, among them, to:

> Strengthen and expand OSA partnerships with public constituencies to advance understanding and appreciation about the human past and stewardship of archaeological resources and showcase the societal benefits of archaeological research and teaching for the citizens of Iowa.
>
> (Office of Iowa State Archaeologist 2016)

To do this the office seeks to "engage external partners to enhance archaeological stewardship and foster economic development and heritage tourism." Especially important in reaching this goal, is the partnership between the State Archaeologist and the Iowa Archaeological Society (IAS), which has "played a part in educating the public for almost half a century (Alex 2000: 242)" In addition to the IAS, prominent partners include the Iowa Natural Heritage Foundation, the Iowa Department of Natural Resources and the Tribal Historic Preservation Office of the Iowa Tribe of Kansas and Iowa.

The Iowa Natural Heritage Foundation (INHF), a non-profit, statewide conservation organization, has been involved in numerous land acquisition

projects involving cultural resources. Perhaps most prominent is their work at the Blood Run National Historic Landmark, the largest, most complex recorded site of the Oneota tradition. Running along both sides of the Big Sioux River, it includes as many as 3,000 acres of land in northwestern Iowa and southeastern South Dakota, with large and small mounds, stone circles, a serpent effigy mound, and a 15-acre earthen enclosure. The INHF helped acquire a key, 230-acre tract in the core area of the site in the 1987. Managed for the state by the Lyon County Conservation Board, land acquisition continues, enabling the State to "for the most part, to stay ahead of land development pressures." The site has sacred importance to indigenous people and the THPO of the Iowa Tribe of Kansas and Iowa has been closely involved in the public interpretation of the site (Iowa Natural Heritage Foundation 2013).

The Iowa Department of Natural Resources oversees the State Preserve System, a system of preserved land parcels, owned variously by private individuals, land conservation organizations, and local and state government. Established by the State Legislature in 1965, the Preserves Program protects natural and historical resources and places. Designation as a State Preserve protects the land in its "natural condition . . . for centuries to come" (Iowa Department of Natural Resources 2016a). Many of the more than 90 parcels in the Preserve System have important archaeological resources, and some, such as the Fish Farm Mounds State Preserve, is dedicated specifically as an Archaeological State Preserve. Other Preserves emphasize multiple aspects of the land. For example, the Cedar Bluffs Preserve, acquired with assistance from the INHF, was dedicated in 1997 as a biological, geological, and an archaeological preserve (Iowa Department of Natural Resources 2016b).

The preservation and protection of important places requires the persistent efforts of energetic and thoughtful people. The linear mound restoration project that I heard about while visiting northeastern Iowa, was just one of many sites and places that Shirley Schermer visited in her 24 years of working for the Office of Iowa State Archaeologist, before retiring in 2014. For part of that time she served as a member and chairperson of the State Preserves Advisory Board. The people I stayed with at Harper's Ferry were grateful for the guidance she provided, and for making archaeology a sensible part of their sense of place and their stewardship of the land.

Partnerships with tribes: King Philip's War Battlefield Studies in Rhode Island and Massachusetts

King Philip's War, 1675–76, was a brutal and bloody conflict that definitively opened southern New England to unimpeded English settlement. For the Indian people who fought against the English, the war was a last-resort defensive effort to protect their homeland after several decades of mounting abuse. The Pokanoket leader Pometacomet (known to the English as

"King Philip,") detailed these grievances, just days before the war began, to a Quaker peace delegation led by Deputy Governor John Easton of Rhode Island, telling them that his people had been driven to prepare for war by repeated acts of dishonesty, intimidation, encroachment, and land theft.

The war devastated many Indian communities and caused great loss of life and property among the English colonists. Not all Indian people fought against the English, but for those who did, the war took a heavy toll, as many were killed in battle or indiscriminately massacred, executed, sold into slavery, or put on reservations. Others moved to the geographic and economic margins of colonial society or became refugees among distant tribal nations to the north and west (Jennings 1975; Schultz and Tougias 1999).

The effects of the war were immediate and lasting, and they are still felt today, a source of tension not only between Indians and non-Indians, but also among some of the descendants of tribal people who had chosen opposite sides in the war. In 2004, town officials in Montague-Turner's Falls, Massachusetts invited the Narragansett Indian Tribal Medicine Family to lead a reconciliation ceremony to acknowledge the massacre of Indian people that had occurred there during the war and to "put the traumatic echoes of the past to rest" (Montague Town Selectmen et al. 2004). That ceremony promised a lasting collaboration among Indian and non-Indian people in Montague, that over the next few years, became a regional effort to study the war and to reconcile ongoing disagreements.

As part of this larger regional effort, the Narragansett Indian Tribal Historic Preservation Office joined in a research partnership with the RI Historical Preservation and Heritage Commission (the RI SHPO) and the Blackstone Valley Historical Society in a multi-year study to find and evaluate the place in northern Rhode Island where more than 100 Narragansett people were massacred by Connecticut forces near the end of the war (Greenwood et al. 2011; Harris and Robinson 2015; McBride et al. 2013). Soon after the study at Nipsachuck was completed, several THPOs in southern New England joined with the Town of Montague and some of the adjoining towns, to document and evaluate the Turner's Falls massacre site at the falls on the Connecticut River (McBride et al. 2016). Montague town officials say that this ongoing study is "an embodiment of the original reconciliation ceremony" (Abbondanzio and Ramsey 2014).

Both multi-year projects were funded by the NPS's American Battlefield Protection Program (ABPP). The program has an explicit place-based, landscape approach. It requires that its archaeological and cultural resource identification and evaluation projects be carried out through multiple partnerships. The ABPP's purpose is to

> assist citizens, public and private institutions, and governments at all levels in planning, interpreting and protecting sites where historic battles were fought on American soil . . . in order that present and future

> generations may learn and gain inspiration from the ground where Americans made their ultimate sacrifice.
>
> (American Battlefield Protection Program 2016)

Local towns, historical societies, and THPOs formed strong partnerships for both battlefield projects. The Town of Montague, the grant applicant for the Turner's Falls project, joined with several neighboring town governments and historical societies whose lands and interests included some of the battle landscape. Four THPOs were partners and members of the Montague's ABPP Advisory Board, preparing and reviewing project documents, and contributing oral and written reports. In Rhode Island, the Narragansett THPO joined with the THPOs from Mohegan, Mashantucket Pequot, and Aquinnah Wampanoag to work with the RI SHPO, who was the grant applicant, and the Blackstone Valley Historical Society in a research partnership, the results of which were synthesized into final reports by the RI SHPO and its consultants from the Mashantucket Research Museum. At the suggestion of the Aquinnah Wampanoag THPO, the research methodology was modified for the Montague/Turner's Falls project so that each tribe – Narragansett, Aquinnah Wampanoag, Nipmuc and Stockbridge-Munsee Mohican, contributed a separate, autonomous, and independent report.

The 1992 amendments to the NHPA enabled federally recognized Indian tribes to establish Tribal Historic Preservation Offices. But for the Act and these amendments, the projects at Nipsachuck and Montague would not have occurred. At Nipsachuck, the RI SHPO and the regional THPOs worked together as equal research partners. In Montague, the project's participants were driven by a desire to better achieve that equality and to continue the process of reconciliation begun by local officials and the Narragansett Tribe's Medicine Family, more than a decade earlier.

During the King Philip's War, Nipmuc people bore much of the responsibility for defending the central and northern Connecticut Valley from English attacks, and they suffered greatly in the aftermath. In the Tribe's research report they expressed the spirit of the project as a continuance of the reconciliation ceremony that sought to begin healing between peoples:

> We have the opportunity now to come together and heal our community and this very project has given us much help on this road. We are very grateful to be heard and truly listened to, and to have the opportunity to return to this place to learn, and to remember.
>
> (Chaubunagungawaug Nipmuck Historic Preservation Office and Associates 2015: 15)

Ongoing and developing challenges in the twenty-first century

Some of the challenges faced are systematic and long-standing. They require our attentive and persistent efforts. Issues such as adequate curation of physical

collections, including records, collections conservation, scholarly and public access to CRM data and information, and obtaining necessary program funding and professional staffing at all levels of CRM will, to some extent, always be with us (see also Chapters 1, 15, and 16, this volume).

Regarding state CRM programs, I highlight two additional general issues: the challenge of working effectively with descendant communities, as illustrated by Indian tribes and their historic preservation programs and the challenge of how to adjust to and mitigate the effects of climate change. The first is an issue that runs wide and deep, as the military conquest of Indian Nations left a scar on this nation that diminishes and taints its spirit. The second, climate change, also is of great importance. The warming atmosphere and oceans, rising sea levels, increasing wild fires, droughts, and storms threaten not just our cultural resources and heritage, but our security as a nation and the health of the planet.

Working with Indian descendant communities: accommodating our diverse interests

T. J. Ferguson (2009: 169) begins his essay in *Archaeology & Cultural Resource Management: Visions for the Future* (Sebastian and Lipe 2009), with this: "We can improve the quality of archaeology in the United States by developing more effective consultation with the descendants of the past peoples we study and by building upon that consultation to create collaborative research projects." In Ferguson's essay, which focuses on federally recognized American Indian Tribes, he notes that the "managerial" framework for accomplishing these collaborative projects is present in the NHPA and other federal legislation and regulations. Moreover, he reminds us, scholarly consultation with groups affected by archaeological or CRM research is encouraged by professional codes of ethics, for example by the Society for American Archaeology (Lynott and Wylie 1995: 23–24). Some organizations would push ethical codes further, for example, in the principles and rules of the World Archaeological Congress (WAC). Among other things, the WAC asserts that the "cultural heritage rightfully belongs to the indigenous descendants of that heritage WAC 2016)." The organization requires that "members . . . obtain the informed consent of representatives of the indigenous peoples whose culture is being investigated", and that "members do not remove . . . objects of special cultural significance without express consent" (Bridges 2009; Ferguson 2009: 182; WAC 2016; see Chapter 4). "What we need to do," Ferguson (2009: 169) argues,

> is to make the most of existing opportunities . . . and develop long-term working relationships in which we share decisions about how to manage and research archaeological sites. This will enable us to increase the benefits of archaeology for all . . . including scientists, descendant groups and the public.

Although, as Ferguson notes, the managerial and ethical frameworks for meaningful consultation and collaboration exist, the process they enable and require is sometimes neglected or purposefully ignored (Chapter 8, this volume). Attempts at consultation often occur within the larger context of jurisdictional disputes between states and tribes, and developing working relationships can be further hindered when the parties hold markedly different perspectives about the values of cultural resources that guide behavior and help set priorities. These differences can make it extremely difficult to achieve the necessary conditions for maintaining "productive harmony," as a principle of policy, even when the different parties agree on the need to protect a significant place.

The Salt Pond Archaeological Preserve in Rhode Island was established in 2013 under a Programmatic Agreement (PA) signed by the RI SHPO, the Narragansett Indian THPO, the Federal Highway Administration, and the RI Department of Transportation. The PA stipulated that the Preserve be held jointly by the State and the Narragansett Indian Tribe, and it provided for "controlled and reasonable public access." It left undefined, however, the details of "ownership and public access." These were to be worked out later in a Memorandum of Agreement between the RI SHPO and the THPO (Salt Pond Programmatic Agreement 2013). The devil, as they say, is in these "details" as plans for the Preserve remain mired in jurisdictional differences between the State of Rhode Island and the Narragansett Indian Tribe. Currently, the state is unwilling to own the property jointly. Moreover, the THPO considers the Preserve, with its human burials and ceremonial features, a sacred place and is very reluctant to allow further archaeological investigations beyond the several acres that were intensively sampled and studied, as a regulatory requirement of the planned housing development, prior to its public acquisition. The State, contrary to the interests of the THPO, has suggested a management plan that would allow long-term, problem-focused archaeological research.

The SHPO's position is consistent with the prevailing view of many archaeologists that site preservation should include "policies and procedures that allow for the consumptive use of portions of sites for well-justified and well-designed archaeological research" (see Chapters 1 and 16, this volume; Lipe 1996, 2009). This view, however, is opposed to the THPO's position that archaeological investigations at Salt Pond are a desecration of a sacred place (Harris 2007). Although jurisdictional differences in this Rhode Island case are unreconciled at present, the underlying different perspectives regarding appropriate use of the Preserve may not be. That reconciliation of different perspectives is possible is shown by the example of a project completed by the Public Archaeology Facility (PAF), in Binghamton, New York, in collaboration with the Onondaga Nation of the Haudenosaunee Confederacy.

The Chenango and Susquehanna Rivers come together in downtown Binghamton, near the site of Binghamton University's new Downtown Academic Center. The area was an asphalt-covered parking lot when the

University proposed the building. No federal funding or permits were needed for this construction, but New York has a state historic preservation law similar to the NHPA. Given the archaeological and historical sensitivity of this place near the confluence, the University contracted with PAF to conduct archaeological studies before construction. These revealed more than 5,000 years of human occupation, including the foundations and yard deposits from the nineteenth century; evidence of a Native American longhouse community (ca. AD 900–1400); and a more ancient hunter-gatherer camp (ca. 3500 BC).

In designing the building, the PAF worked with architects and the Onondaga Nation Historic Preservation Office to commemorate and honor the people who had lived there. Archaeologists designed and installed a permanent exhibition for the building, "*Our Invisible Past: The Archaeology of Everyday Life*," that describes the everyday life of Indian and non-Indian people. Working with the architects, the outlines of the nineteenth-century neighborhood, as documented by the excavations, are inlaid with terrazzo tiles on the atrium floor, showing the outline of the stone foundation walls of two privies, a well, other rear yard features, and a segment of a house wall (Binghamton University, Department of Anthropology 2011; Versaggi 2011).

Haudenosaunee people have been making pilgrimages to this place, this confluence of rivers, for some time. In her consultations with Onondaga, PAF Director, Nina Versaggi, asked Faithkeeper and artist, Tony Gonyea, if he would design a commemorative piece for installation in the new building as part of the exhibition. He would have complete control over his work. Working with Seneca artist, Tom Huff, the two men created and carved the sculpture, *Givers of Life*, a sandstone representation of a mother holding a child. On her back are maize, beans, and squash, the Three Sisters of Haudenosaunee cosmology. The carving symbolizes Sky Woman, the birth of the Haudenosaunee people and the importance of women as sustainers of life. Gonyea's and Huff's sculpture, with the other elements of the exhibit, have "transformed [the new building] into a place where the past has merged with the present," by calling attention to the long-standing and continuing importance of the place to many different peoples (Versaggi 2011).

The Sky Woman story is shared by Tribal people around the Great Lakes and throughout the northeastern United States. Robin Kimmerer, a Potawatomi ethnobotanist and Distinguished Teaching Professor in the Department of Environmental and Forest Biology at the State University of New York, Syracuse, describes the story's meaning. The story, she says, provides "instructions," or guidance on how to live one's life. To some people, Sky Woman is the first immigrant, falling from the Sky World with "just a handful of seeds and the slimmest of instructions to use [her] gifts and dreams for good." In the world she made, she worked honorably with others, "sharing the gifts she brought from Sky World." In gratitude and reciprocity, she accepted gifts in return from others, as "she set herself about the business

of making a home" (Kimmerer 2013: 8). Kimmerer (2013: 9) tells us that the story also teaches that "despite our fears of falling, the gifts of the world stand by to catch us."

Versaggi implies that fear of falling, as shown in the act of "relinquishing control" to the Onondaga Faithkeeper, an act that might have resulted in the making of a work of art that was unacceptable to the owners of the building. Despite obstacles that had initially hindered consultation between PAF and tribal authorities, however, Faithkeeper Gonyea and PAF Director Versaggi achieved a successful collaboration, a relationship that was based in trust, equality, respect, and a beautiful work of art.

Climate change

In a recent interview, Jonathan Jarvis, the then-Director of the NPS, identified climate change as a major challenge facing the protection of the nation's natural and cultural resources:

> It's the biggest challenge the National Park Service has ever faced. I put it up there because it fundamentally changes the way we are going to manage our national parks into the future. It's making us rethink the whole paradigm under which we manage them . . . [requiring that we] manage NPS resources in a context of continuous change that we do not fully understand.
>
> (Kahn 2016: 1)

Jarvis also issued Director's Policy Memorandum 16–01 (National Park Service 2016b), which summaries a detailed response to this challenge. Among other things, the Memorandum states that the NPS will actively promote an understanding and awareness of climate change among the general public and that it will work with indigenous people, as holders of traditional and long-term ecological knowledge, to develop management practices in certain locations.

The NPS has developed Cultural Resources and Climate Change Response programs and sponsored planning workshops (Rockman 2013). Recent work with the SHPOs in New England and the Middle Atlantic states, using monies from the NPS Emergency Supplemental Historic Preservation Funds, has supported studies to assess the effects of Hurricane Sandy on historical and archaeological sites. The study also aimed at developing ways to confront the impending loss of coastal archaeological sites and other cultural resources from sea level rise (Ives et al. 2016). These state-based studies were carried out within the larger mission of the NPS that calls for collaborative action on a national scale (Fitzpatrick et al. 2015). They assessed the immediate and damaging effects of the storm and began to address long-term management concerns by identifying local and regional stakeholders,

including Tribal authorities, planners, preservationists, property managers, and residents (Ives et al. 2016).

Using these grant funds, SHPOs have identified ways to begin planning for the long-term effects of sea-level rise. Initially, most of these state efforts have been directed toward identifying what kinds of resources are most at risk and where they're located. New Hampshire, for example, is digitizing records and reports so their data files can be quickly accessed. New Jersey is working on a statewide database that will include information about terrestrial sites along the coastal edge and historic shipwrecks. Pennsylvania is developing maps identifying sensitive areas that are especially prone to tropical storms and heavy rains. In addition to these specific actions, SHPOs have joined planning task forces to be sure that their concerns are part of the overall statewide-planning process (Ives et al. 2016: 10).

In these times of public skepticism about the efficacy of government and some disregard for the findings of the scientific community, it's of great importance that the NPS is developing these climate change initiatives. The Park Service is a highly-esteemed government agency. A recent survey showed that 84 percent of voters approve of what the NPS is doing (National Parks Conservation Association 2012). In many peoples' minds, our national parks and monuments stand for what's good about the nation and its democratic and liberal traditions. An important part of the NPS mission is to support an "informed citizenry" (Galvin 2001). Perhaps then, the citizenry will take seriously the ideas and policies in NPS Director's Policy Memorandum, which reads in part:

> Informed by scientific and scholarly research, *and traditional ecological knowledge*, we will manage our resources emphasizing resiliency, connectivity at landscape scales, and life-cycle stewardship.
>
> (National Park Service 2016b: 3, emphasis added)

The process of seeking "traditional ecological knowledge" from indigenous people is fraught with political and emotional difficulties. No one should expect Indian people to simply hand over the knowledge of many generations. If we engage thoughtfully, though, we might learn about what Kimmerer describes as the traditional indigenous idea of the Honorable Harvest, a set of teachings that instruct people how to enter into a reciprocal relationship with the world and its other-than-human creatures (Kimmerer 2013: 189–190). One of those instructions is to *take only what's given*, a general ethical principle, that interestingly, is also paraphrased in WAC's First Code of Ethics (2016). It's also a principle that guided Nina Versaggi as she worked with the Onondaga Faithkeeper on the exhibit for the Academic Center in downtown Binghamton. One can imagine too, that the teachings of the Honorable Harvest would be useful in confronting the challenge of climate change and in finding ways of living in "productive harmony" with

our cultural and natural resources. Moreover, those instructions, of obligatory reciprocity and gratitude, may not be much different from ones that aim to achieve, as Director Jarvis put it, "resiliency, connectivity at landscape scales, and life-cycle stewardship" (National Park Service 2016b: 3).

Conclusion

The NHPA begins by stating that the spirit and direction of the Nation are founded upon and reflected in its historic heritage. State programs play an important role in determining the composition and expression of that spirit as they inventory, interpret, and make public the buildings, sites, and places that collectively comprise our material cultural heritage. The people working in the state offices, and the programs they develop and carry out, inspire us to find meaning in our places. They contribute to our sense of place by working to make our historical and archaeological resources part of the living community. It is simply impressive what state programs have accomplished through their CRM activities in the 50 years since passage of the NHPA – by working with a variety of notable partners – to make cultural resources part of the public experience and discourse.

Among the state-based programs described in this chapter are activities, procedures, public policies, and political tools that provide examples of the many ways in which SHPOs, THPOs, and other local and state organizations have advanced the goals of appropriate use of cultural resources and their preservation. Partnerships among organizations within states and across borders are an important means to these ends. Many successful examples have brought together diverse groups and benefited from the strength of such cooperation. Mutual compromise often is a component of such cooperative efforts. Overall, a common sense of broad cultural resource stewardship that bodes well for future success is built through these kinds of programs.

There are challenges to be faced, however. One important challenge is establishing and sustaining reciprocal and trustworthy relationships with indigenous people and other descendent and minority groups. We must recognize that the spirit and sense of place for these groups also underlie, surround, and suffuse *all* the places we seek to preserve and protect. This chapter summarizes just a few of many examples around the country where people are working hard at this. Perhaps we'll enter into new relationships that reimagine how we might coexist with the natural and cultural resources of this nation.

Ethnobotanist Kimmerer relates the experience of Carol Crowe, an Algonquin ecologist, who approached the Tribal elders for permission to attend a sustainability conference. The elders asked her what was meant by "sustainability." When told that it entailed the management of resources for the "continued satisfaction of human needs for present and future generations," they countered with: "This sustainable development sounds like they just want to keep on taking like they always have . . . you go tell them that

in our way, our thoughts are not 'What can we take?' but 'What can we give to Mother Earth" (Kimmerer 2013: 189–190). The elders might also have included cultural resources in their response. Perhaps the challenge, then, is to determine, *with* all interested parties, what constitutes the best use of our cultural resources and, when all is said and done, to take, in "productive harmony," only what's given.

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8 Zuni and 40 years of CRM

A perspective from on and off the reservation

Cindy K. Dongoske, Kurt E. Dongoske and T. J. Ferguson

Introduction

In 1540, the Zuni effectively resisted the threat from Coronado's Spanish entrada. Several hundred years later, in the 1880s, employing public opinion, the Zuni foiled the efforts of two Fort Wingate Army officers and a U.S. Senator to grab Zuni land around the farming village of Nutria. Today, the Zuni strive to protect an important Zuni traditional cultural property (TCP), Mt. Taylor, from desecration by a proposed uranium mine. These examples demonstrate the long history of Zuni efforts to protect their tribal heritage and important cultural places.

In this chapter, we examine how the past 40 years of cultural resource management (CRM) and its changing legal environment have affected the role Zuni plays in preserving Zuni culture and heritage on and off the Zuni reservation. We evaluate the accomplishments and difficulties associated with integrating Zuni preservation values within the dominant federal historic preservation paradigm that is grounded in a Euroamerican scientific rationalist and materialist perspective of history. We conclude by reflecting on the enduring issues and flash points of conflict between competing cultural values that arise in the arena of CRM.

The perspectives presented in this paper are informed by the authors' combined eighty-five (85) years of experience working for and with the Pueblo of Zuni and other Native American tribes on a day-to-day basis on CRM issues, programs, and projects. Ferguson's involvement with Zuni heritage preservation began in 1976 when he participated in and witnessed the early development of the tribe's historic preservation program. Ferguson was also instrumental in assisting Zuni in two land claims cases (known as "Zuni 1" and "Zuni 2"; Hart 1995: xix) brought before the U.S. government. Today, he continues to work closely with the Zuni Cultural Resource Enterprise in efforts to identify and manage Zuni traditional cultural properties located off the Zuni reservation. The Dongoskes describe the current state of CRM on and off the Zuni reservation, viewed through the lens of the Zuni Cultural Resource Enterprise and the Zuni Heritage and Historic Preservation Office.

Developing a tribal CRM program

The Pueblo of Zuni is a federally recognized Indian Tribe with a reservation established by presidential order in 1877. The main body of the Zuni reservation borders the New Mexico/Arizona state line in western New Mexico. The Zuni also have reservation lands at Zuni Salt Lake in New Mexico, and at "Zuni Heaven" in Arizona (Figure 8.1).

The A:Shiwi, or Zuni people, have resided in the Zuni and Little Colorado River valleys for more than 2000 years. The Zunis maintain deep cultural roots in this area and have one of the longest, continuous occupations of aboriginal lands in the Southwest. This long occupation has generated a rich archaeological record encompassing thousands of archaeological sites ranging from sparse artifact scatters to large, plaza-oriented pueblos (Spier 1917; Kintigh 1985; Anyon and Ferguson 1995).

Historically, the Zuni people have withstood numerous challenges to their right to freely occupy and use their aboriginal lands. In 1846, the U.S. government took possession of the Southwest from the Republic of Mexico as a settlement of the Mexican-American War. At that time, the Zuni had an

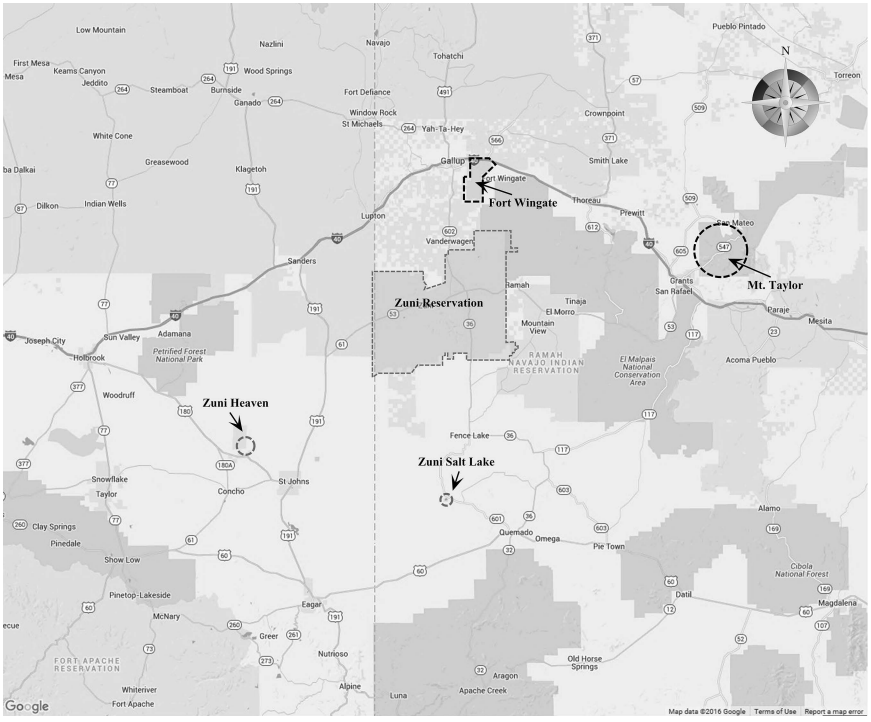

Figure 8.1 Map of the Zuni Indian Reservation and the surrounding area in Northeastern Arizona and Northwestern New Mexico with the locations of the landscape features and sites mentioned in the chapter shown

aboriginal land base of over 6 million hectares, extending from alpine and conifer-forested high mountain peaks to grassland and desert-scrub along the Little Colorado River (Ferguson and Hart 1985: 5–57). Zuni aboriginal lands included numerous sacred areas, as well as areas where wild plants and animals were harvested, providing critical resources for supplementing the Zuni agricultural economy (Anyon and Ferguson 1995). Today, the lands owned by the Zuni Tribe constitute approximately 3 percent of its aboriginal land base. Zuni Pueblo, the principal town on the reservation, was founded about AD 1350 (Woodbury 1979: 469). Other than a short hiatus during the Pueblo Revolt, it has been occupied continuously since then.

The Zuni Tribe developed a historic preservation program in response to federal legislation mandating the consideration and preservation of archaeological sites and other historic properties (Anyon and Ferguson 1995; Anyon et al. 2000). At the outset, Zuni leaders recognized a need to train and employ tribal members in historic preservation, rather than rely on universities and museum personnel who knew little about Zuni traditional concepts of preservation (Ferguson 1984: 225–226). Tribal leaders also wanted to capture the economic benefits of historic preservation, and keep wages circulating within the community rather than being exported to distant cities. With the assistance of the National Park Service, initial on-the-job training of Zuni tribal members was provided through the Arizona State Museum (Isham 1973; Anyon and Ferguson 1995). This pilot effort proved to be successful and based on those positive results the Pueblo of Zuni initiated its own historic preservation program, the Zuni Archeological Conservation Team (ZACT) in 1975. ZACT was among the first tribally owned and operated historic preservation programs in the United States.

In 1976, in response to a lack of funding to support training and research efforts, the Pueblo of Zuni replaced ZACT with the Zuni Archaeological Enterprise (ZAE), a tribally owned business. ZAE was charged by the Zuni Tribal Council to become financially self-sufficient within an administrative division of the tribal government. For the next two years ZAE supported a staff of three non-Indian archaeologists and six to eight Zuni tribal members by conducting archaeological surveys under contract on the Reservation. In 1978, the Zuni Tribal Council re-named ZAE as the Zuni Archaeology Program (ZAP) and identified four goals for the program (Ferguson 1984: 226): (1) increase employment and career opportunities for tribal members; (2) enhance archaeological and historic research by directly involving Zunis; (3) establish and maintain a locally based professional archaeological organization; and (4) implement cultural resource management policies that respect Zuni values and beliefs.

In recognition of the public services identified in the ZAP goals, the Pueblo of Zuni initially funded 50 percent of the ZAP Director's salary; however, in 1980, in response to a tribal budgetary crisis, ZAP resolved to depend solely on archaeological grants and contracts. The Zuni Cultural Resource

Enterprise (ZCRE) was established in 1982 as a small business owned by the Pueblo of Zuni. As a separate business, ZCRE was exempt from tribal historic preservation responsibilities that remained with ZAP; the two organizations coexisted with different missions for close to a decade.

In the early 1990s, two pieces of federal legislation significantly changed the historic preservation landscape for Native Americans. In 1990 the passage of the Native American Graves Protection and Repatriation Act provided Tribes with significant opportunities to protect their cultural heritage and to initiate a process for the repatriation of cultural items. Two years later, the National Historic Preservation Act was amended providing Tribes with the ability to assume preservation functions previously fulfilled by the State Historic Preservation Officer. In addition, the amendment of the NHPA formally recognized traditional cultural properties as historic properties needing consideration under the act.

In November 1993, the Zuni Tribal Council replaced ZAP with the more broadly focused Zuni Heritage and Historic Preservation Office (ZHHPO), with ZCRE remaining as a tribally owned CRM business. ZHHPO was established to (1) promote the protection and conservation of Zuni cultural resources on and off the reservation; (2) function as a point of contact for the Pueblo of Zuni in its national and international repatriation efforts; (3) represent the Pueblo of Zuni and negotiate agreements regarding cultural resources with federal, state, tribal, and private agencies; (4) perform Zuni traditional cultural property consultations; and (5) assume the responsibilities of the State Historic Preservation Offices on Zuni lands in New Mexico and Arizona.

This last charge was accomplished in 2000 when the National Park Service designated ZHHPO as an official Tribal Historic Preservation Office. With the establishment of ZHHPO, the primary goal of ZCRE remained the development of a competitive, tribally owned, archaeological contracting business, with further educational training of tribal members.

In 2004, responding to increasing financial pressures, Zuni Governor Bowekaty conjoined ZHHPO and ZCRE. Today, the function of ZHHPO and ZCRE are performed by a single, reduced staff with continuing financial pressures that necessitate the successful acquisition of grants and contracts because federal funding for THPOs is not adequate to support a tribal preservation program.

On the reservation, ZCRE provides cultural resource management services for most Section 106 compliance activities. Seventy-five percent of the ZCRE staff is comprised of Zuni tribal members who perform compliance surveys for proposed projects on the reservation. Some of these Zuni archaeologists are also initiated into kiva groups and medicine societies that enable them to identify sacred areas or properties of traditional cultural importance that would be overlooked by a non-Zuni archaeologist. In most cases, when historic properties are identified within a project area, avoidance is recommended as the preferred method of treatment. However, because the

Zuni Tribe is developing higher standards of living, situations arise which require negotiation of hard decisions involving historic preservation and new development.

For example, during the past four years ZCRE has been involved in identification, testing, and data recovery at three archaeological sites impacted by a proposed new Zuni airport. The current airport, located in Blackrock, has been determined unsafe by the Federal Aviation Administration because the runway is approximately 1,000 feet too short and the immediate area around the runway has become a residential area. The Federal Aviation Administration entered into a Memorandum of Agreement with the Pueblo of Zuni and the Zuni Tribal Historic Preservation Officer to avoid or mitigate adverse effects on historic properties located within the proposed new Zuni airport project area. Forty-four archaeological and historic properties were identified within the airport project area; 33 of these properties could be effectively avoided. Eleven archaeological sites were located within the direct impact area of runway construction and were tested to determine their nature and extent. Testing revealed three archaeological sites with significant subsurface deposits that required data recovery.

ZCRE performed the data recovery at these three sites during 2012. One of the sites consisted of a small pit structure and two extramural hearths. The other two sites each contained an above ground masonry pueblo, numerous pit structures, and associated extramural features (Dongoske and Dongoske 2015). An all-Zuni team of archaeologists conducted the excavations and performed traditional daily offerings to the spirits of the Zuni ancestors that continue to reside at the two ancient villages. Throughout the duration of the fieldwork, the Zuni Governor, Tribal Council members, and Zuni religious leaders frequently visited the excavation to view what was being unearthed and provide a Zuni perspective and interpretation of the archaeology. These visits were important to the successful completion of the project.

Zuni CRM off the reservation

Off the reservation, ZCRE works with federal agencies during the Section 106 process to identify places of Zuni traditional concern that are located within the area of potential effects of proposed projects. Information about Zuni traditional cultural properties is not necessarily shared by all of the Zuni community; it is proprietary information managed by particular priesthoods, medicine societies, and kiva groups. This means that ZCRE must conduct ethnographic research to identify traditional places of importance within specific project areas. Successful Zuni traditional cultural property identification and assessment of a project area requires the collaboration of many Zuni religious leaders, ZCRE personnel, and, at times, non-Zuni ethnographers. Maintaining transparency, respect, and confidentiality are key to a successful working relationship between the Zuni cultural

advisors and ZCRE. A thorough peer review of draft reports by Zuni cultural advisors maintains the integrity of the Zuni information contained in the report and assures that the information shared with federal agencies is appropriate and acceptable to each of the Zuni cultural advisors.

Within the past five years ZCRE has performed Zuni traditional cultural assessments for three large proposed projects. These include the Lake Powell Pipeline Project (Colwell-Chanthaphon et al. 2011), the proposed Roca Honda uranium mine on Mt. Taylor (Colwell-Chanthaphonh and Ferguson 2011, 2014), and the Fort Wingate Military Activity Depot (Dongoske and Damp 2007; Dongoske and Nieto 2005; Hopkins and Ferguson 2014).

All Zuni traditional cultural property research is performed within the context of federal laws, state laws, and Presidential Executive Orders, with a particular focus on the National Historic Preservation Act of 1966 and the National Environmental Policy Act of 1969, both as amended. TCP research is implemented using a "cultural landscape" perspective, which provides an analytical frame congruent with historic preservation and environmental legislation concerned about the environment, botanical and biological resources, sacred sites, and historic properties. In many instances, the assessment of Zuni TCPs results in serious concerns for Zuni traditional and religious leaders because they conclude that the proposed project will have major direct, indirect, and cumulative impacts on the Zuni's historic, natural, and cultural environment. Zuni reports provided to federal agencies include specific recommendations for mitigation of adverse effects, in most cases emphasizing total avoidance. The reports are intended to provide federal agencies with information about historic properties of importance to Zuni within project areas and to provide a research context useful in the government-to-government consultation that is mandated between federal agencies and the Pueblo of Zuni.

For example, the Zuni TCP assessment of the Fort Wingate Military Depot Activity identified a total of 586 Zuni traditional cultural properties that were considered eligible for inclusion on the National Register of Historic Places (NRHP), or for which NRHP eligibility was undetermined (Hopkins and Ferguson 2014). These include the Anshe Ky'an'a District, 25 Archaic period archaeological site components, 332 Pueblo period archaeological site components, and 216 historic period archaeological site components, ten trails or trail segments, and two resource procurement areas. In addition, all springs and water sources were considered categorically significant to the Zuni people. All of these historic properties are significant because of their association with cultural practices and beliefs that are rooted in the history of the Zuni community, and their continued importance in Zuni traditions and cultural identity.

Problems may occur when the identification of TCPs occurs subsequent to, or concurrent with, the standard federal effort to identify and evaluate historic properties during the Section 106 process. For example, in December of 2010, during the NEPA public scoping process concerning the

proposed development of a uranium mine on Mt. Taylor, the Zuni Governor sent a letter to the Forest Service Supervisor identifying all prehistoric archaeological sites within the area of potential effects as Zuni traditional cultural properties eligible for inclusion on the National Register of Historic Places under criteria A and B. This Zuni perspective of archaeological sites was reinforced by the Zuni TCP assessment performed by ZCRE in 2011 (Colwell-Chanthaphonh and Ferguson 2012, 2014).

In the summer of 2011, during a multiple tribal stakeholder meeting, Forest Service personnel informed the tribes that the nature and extent of testing on archaeological sites within the proposed uranium mine project area was occurring at the request of the Forest Service without prior consultation with the Pueblo of Zuni. The Forest Service was questioned why they authorized test excavations at these archaeological sites without first consulting with the Pueblo of Zuni, and whether the Forest Service had considered that test excavations may damage those characteristics of these sites that make them eligible for the National Register as Zuni TCPs. The Forest Service response was a bewildered look; they did not offer a reasonable answer. The Forest Service authorized archaeological testing because they viewed the eligibility of these sites solely from a criterion "D" eligibility; that is, their scientific information potential. Thus, the Forest Service – typical of many federal agencies – privileges a Western science and materialist perspective of archaeological resources while disadvantaging the Native American heritage values and perspectives of these important places and the vital role they play in defining individual and collective Native American identities.

The continued privileging of Western science perceptions of archaeological sites by federal agencies over Zuni values will continue to disenfranchise the Pueblo of Zuni from the federal historic preservation process resulting in denying the Zuni an effective voice in preserving places important to their heritage. Moreover, and perhaps more detrimental, the prehistoric narratives that are generated as a product of compliance sponsored archaeological excavation effectively silences the Zuni heritage narrative by replacing it with the colonial narrative.

Conclusion and the view forward

In this chapter we briefly reviewed the past 40 years of heritage and cultural preservation efforts by the Pueblo of Zuni and how the tempering of the federal historic preservation program with Zuni traditional values has produced for Zuni a creative and beneficial preservation program on the reservation. A prime exemplar of this effort is the Old Zuni Mission; once a Franciscan colonizing mission, it is now decorated with murals of Zuni Kokos (katchinas) demonstrating the enduring resiliency of Zuni culture and religion. The Old Zuni Mission is one of the prime tourist destinations on the Zuni Reservation.

Zuni efforts at heritage preservation off the reservation are not as promising a story. Ninety percent of the federal requests for consultation that Zuni receives involve some form of capitalistic assault on places of Zuni traditional cultural importance. The federal historic preservation program is one mechanism through which Zuni can voice their heritage concerns to federal agencies; however, it does not and cannot effectively deal with the psychological and spiritual attachments that Zuni have with their cultural landscape. In fact, past and current applications of the federal historic preservation program creates a process that is stacked against Native peoples by promoting an unfair and one-sided environment in which Native people are required to demonstrate and document a greater degree of association than is required for scientific information potential. The federal process does not currently encourage a meaningful, negotiated compromise with traditional communities regarding how the agency evaluates significance, effects, or designs culturally appropriate measures to lessen the effects to Native American heritage resources. It is also important for federal agencies to recognize the power dynamics inherent in the federal historic preservation program and how the unilateral federal decision-making process continues to unintentionally perpetuate colonialism on the Zuni people.

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9 The business of CRM

Achieving sustainability and sustaining professionalism

Teresita Majewski

Introduction

In Chapter 1 of this volume, McManamon summarizes the development of cultural resource management (CRM) in the United States, in particular regarding the discipline of archaeology. He notes that the term CRM often is used as a synonym for archaeology done in conjunction with public agencies' actions or projects. Cultural resources, of course, are not only archaeological in nature, but include more aspects of heritage. For the purposes of this chapter, I adopt Thomas F. King's definition of CRM as the discipline of "managing historic places of archaeological, architectural, and historical interest and considering such places in compliance with environmental and historic preservation laws" (King 2008: 6). CRM can perhaps be considered the U.S. or North American subset of cultural heritage management (CHM), a term with a more global application and defined as "those practices that identify a community's cultural heritage resources and the programs that ensure their transmittal to the next generation" (Altschul in press). This chapter presents a current snapshot of the CRM industry that has developed since the 1970s and addresses how the industry's trade association, the American Cultural Resources Association (ACRA), has mobilized to address both business and historic preservation challenges facing CRM practice.

Background

The development of CRM as a profession and industry intensified in the United States in the last decades of the twentieth century after key legislation was passed at the federal level, particularly the 1966 National Historic Preservation Act (NHPA), as amended, and the National Environmental Policy Act (NEPA) of 1969. Earlier in this volume, McManamon discusses this more extensively, but the earliest CRM projects were undertaken by universities, with variable and often less-than-desirable outcomes. After several decades, practitioners realized that already established professional organizations, with more scholarly roots, could not fully serve the complex needs of a "profession"

that was intimately tied to both heritage advocacy *and* business. ACRA formed in 1995. Regarding this development, Wheaton (2006: 199) notes:

> In 1995, some companies who saw the importance of having everyone play by the same rules, of having some say in the development and enforcement of the laws and regulations, of promoting good business practices, and of protecting the cultural resources for everyone's benefit, banded together to form a trade association called the American Cultural Resources Association (ACRA). Such an idea would have been met with silence or outright disdain in the 1980s and earlier, but the cultural resources consulting industry had matured by the 1990s to allow companies to realize that they did actually have mutual interests and that by forming an association, they could promote those interests nationally. . . . One of the main reasons this association was formed was to halt the low-bid mentality that some companies were operating under and which resulted in poor work and thus irreparable damage to non-renewable cultural resources. This mentality was a direct result of the history of the industry up to that point.

Early in CRM's history, the emphasis was on "archaeological heritage management," which Wheaton (2006: 193) noted is usually grouped with other heritage resources under the term CRM in the United States. Emphasizing archaeology to the exclusion of other components of CRM has turned out to be shortsighted and counterproductive in the long term for historic preservation. A 2013 survey of industry practitioners conducted by Cultural Heritage Partners, PLLC indicates that there are about 1,300 CRM firms nationwide, and that these firms employ some 10,000 CRM professionals. These professionals generate work for an increasingly diverse cadre of other specialists and support staff, including engineers, planners, environmental scientists, cartographers and geographic information systems (GIS) specialists, information technology professionals, graphic artists, writers and editors, word processors and layout specialists, human resource professionals, accountants, and other administrative staff. Based on survey results, it was estimated that these firms generated over $1 billion in revenue in calendar year 2012.

As a trade association, ACRA represents slightly more than 10 percent of the total number of CRM firms in the United States, and Figure 9.1 illustrates the distribution of firms as of 2013. More than 2,000 people nationwide are employed by ACRA's approximately 150 member firms. ACRA firms are predominantly "small" businesses, with from 1 to 100+ employees who are university-trained cultural resource professionals in the fields of archaeology, geomorphology/geoarchaeology, cultural anthropology/ethnology, architectural history/preservation planning, history, and related disciplines. A "Full" member is a business, for-profit or not-for-profit, which provides CRM services. Full membership categories include small, medium,

Figure 9.1 Distribution of American Cultural Resource Association (ACRA) firms in 2013

and large, and dues within these divisions are graduated according to annual gross revenues for the previous three years. Full members have voting privileges and may run for election. Associate members are institutions of higher education and government agencies. Dues for Associate members are fixed, and members in this category are nonvoting and are not eligible to run for election. There are also categories for Student (fixed dues) and Honorary members; neither category is afforded voting privileges, nor may these members run for election. A membership snapshot as of June 2016 indicates that Small firms represent 50 percent of the membership, Medium firms 17 percent, and Large firms 23 percent; Associate members make up 10 percent of the total. Member firms agree to subscribe to a code of ethics. The association's yearly budget is approximately $200,000 USD. Headquartered in Washington, D.C., the association currently has an executive director and employs a legal firm specializing in preservation law to provide management support and assist the association in its government relations efforts.

Industry challenges

ACRA began as a hybrid between a professional organization and a trade association and has continued to struggle with this dichotomy. This phenomenon has more to do with the embeddedness of CRM in broader, entrenched disciplinary and political structures than it does with practitioners' desires

to maintain the dichotomy. In 2009, the association's officers and board of directors decided to undertake a strategic planning process. The plan created for 2010–15 (ACRA 2010) established that the association's vision was to be *the* voice of the CRM industry, its mission was to promote the professional, ethical, and business practices of the industry, and its values included integrity, professionalism, collaboration, leadership, and success. The association's efforts to provide members with the tools to professionalize and sustain the industry are exemplified by its core services: building a credible image for the industry; supporting and promoting CRM at the national level by "educating" legislators about preservation *and* the industry; disseminating information via conferences, workshops and webinars, newsletters, printed materials, and the Internet and the World Wide Web; establishing and maintaining relationships with organizations having common or overlapping purposes; collecting metrics on the industry and its practitioners; and establishing and encouraging best practices (e.g., through continuing education offerings and workshops).

Being the voice of the CRM industry also requires listening, which has prompted ACRA to commission a number of independently administered surveys that have provided longitudinal information useful for understanding different aspects of CRM. The most recent formal "salary" survey, conducted in 2013, collected detailed information on companies and perceptions of ACRA. A total of 107 CRM firms from around the country responded (Vernon Research Group 2013). Quality responses were received from 47 ACRA member firms and 60 non-ACRA firms. Figure 9.2 illustrates respondents' opinions on the most significant challenges facing their businesses as of 2013.

Firms' responses can be grouped into two broader challenges, with some overlap. The first is sustainability, which incorporates business viability, competition, personnel issues, government, economy, policy issues, and contracts. The second is sustaining professionalism (subsuming personnel

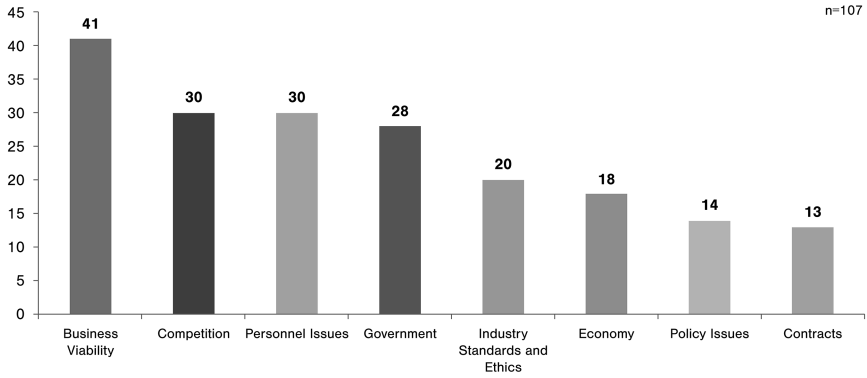

Figure 9.2 Responses to survey question: "What are the biggest challenges that face your business today?"

Source: From Vernon Research Group 2013: 120

issues, and industry standards and ethics). Business viability encompasses all of the items under sustainability. Many of the items overlap and are interrelated.

In 2014, I surveyed the then-current ACRA Board of Directors (n = 21; this figure includes officers) to elicit their input on the challenge areas from the Vernon survey noted in Figure 9.2. As industry leaders, they were able to provide in-depth information to supplement the results of the 2013 survey. This feedback from about half of the 2014 board added significant additional information on competition, professional and ethical standards, and government, economic, and policy issues, as well as on topics not covered in the Vernon survey. Board comments are summarized in the following portion of this section in general statements.

There was a very strong feeling that ACRA must uncompromisingly support high standards, because in the end this is really the key issue. The responses noted that business competition is a real, everyday challenge in any business (and in society in general). Firms strive to achieve a balance between competitive wages/benefits, competitive billing rates/systems, acting professional/ethical, and being efficient. The truth is that there isn't one way, and all business owners/managers should be challenged by it! The fact that standards and ethics vary among industry practitioners leads to much of the competition.

A firm bidding the lowest price for a job may do perfectly respectable work, but that really makes it worse. "Lowball" (i.e., artificially low) prices condition clients to devalue the work. And once the work is devalued, so are wages and benefits. Then, the entire industry suffers. Lowballing won't result in the end of our profession like eliminating legal and regulatory requirements would, but it is likely to depress prices so much that it will no longer be viable to be in this business unless you have an alternative income stream and can indulge in CRM as a hobby.

The companies that charge unreasonably low prices and those that don't act professionally or ethically do a great disservice to the CRM industry. Unfortunately, all CRM firms are often lumped together, including those that take their responsibilities to the resource and to the client seriously. As an industry, we don't seem to see ourselves collectively with the professionalism that we deserve. One director noted that we need to up our game as an industry and increase our professionalism. Another noted that it is in the industry's best interests to argue for strong review agencies that will hold applicants' feet to the fire and demand that work is done to the specified standards. Whether or not this happens consistently, it should not stop ACRA from working with State (SHPOs), Federal (FPOs), and Tribal Historic Preservation Officers (THPOs) to find ways to improve the situation.

One director noted that regulations and laws should be first on the list of concerns, because the entire industry relies on the legal framework for historic preservation. Another noted that government, economic, and policy issues all directly affect businesses, but are largely out of an individual

businessperson's control. Disruption of the current framework of laws that govern the CRM industry and make it a necessity (and therefore viable) would be disastrous. That is why many ACRA members joined and financially support the association. ACRA members rely on the association's advocacy function so that they can focus on their individual business until called to action. Even the CRM companies that refuse to join ACRA benefit from the association's efforts. Concern was expressed about government leadership at the local and national levels as well as about the influence of big money.

Without Section 106 of the NHPA and NEPA, and/or their state equivalents, much of the work conducted as CRM would disappear. Concern was expressed about a possible continuing, gradual process of constraint, under which more actions, licenses, undertakings, etc., are exempted from state and federal laws and regulations. The laws would still be on the books, but they would largely be a dead letter because there will be no enforcement and myriad exceptions. Is there a different model for CRM?[1]

Historic preservation relies heavily on public support, as the bulk of funding for the work carried out by CRM firms comes from tax dollars. Some directors felt that the industry needs to do a better job of public outreach and accountability. The NRHP was created because of public interest and concern. From the law boomed an industry focused on compliance, and CRM certainly now is an industry focused on compliance *and* client relations. As an industry, CRM routinely fails to reconnect with the public. Many projects include public outreach of some kind, and this is generally met with much excitement. But moments of excitement are not going to keep the public engaged in the realities of the legally mandated preservation process. Without more effective ways of connecting what CRM accomplishes with society in general, support could dwindle.

One director expressed a related concern that of all the research fields, archaeology is the worst at how data are managed. This concern could be considered to subsume data and collections management (artifacts and associated records in paper and digital formats that result from projects). While board members differed in their opinions on whether or not data and collections management are CRM issues, no one really denied that they are broader issues of concern. One director voiced the opinion that if we want people to believe that archaeology is really important, we have to do more than just find a curation facility and hand the materials over. We have to develop a way to assess collections, establish clear ownership for them, take care of the most important ones for a specific amount of time, and make those materials accessible (see Trimble and Farmer, Chapter 12, this volume). Right now, we are doing none of those things well. That is the curation crisis and, since CRM is generating most of the physical collections and data, this is a CRM issue.[2]

Personnel issues engendered considerable comment from board members. For some, the main personnel issue is how the industry can provide a meaningful career path for people coming into the CRM field. Add to that the

fact that we are part of the world of stagnant wages and increasing costs, and it can be a disheartening picture. Although this is part of much larger political issues, there was agreement that ACRA should encourage supportive personnel policies among member firms.

Appropriate training for employees entering CRM over the next decades is one of our biggest challenges, starting with K-12. Some employers are struggling with employees who don't know basic English grammar, such as sentence structure, and who don't know how to write a paragraph. If this continues, it will be a major obstacle in the future. We need good CRM programs at the university level and have too few. This is the reality for the majority of students graduating with anthropology/archaeology degrees; too many simply are not prepared for the workplace.

A major concern, especially for board members that have been in the industry for many years, is that as a profession we do not value ourselves or our work. This is intensifying with the decrease in funding available for CRM. Too frequently historic preservation consultants see themselves as ordained practitioners who have taken a vow of poverty to ensure that all sanctified properties are protected. We are frequently viewed by others as being at the bottom of the food chain because we do not value ourselves or our work. We understand that the engineer is important because he or she designs and builds something. However, we as cultural resource managers build something also – a clearer understanding of the shared history of mankind and a sense of place for our increasingly heterogeneous society. We contribute to giving a voice to peoples throughout history so that prejudices are weakened. We provide value to society and thus should value ourselves and our work. Consequently, our first move when faced with limited budgets should not be to devalue our services; rather we need to be creative in providing valued CRM services.

Addressing sustainability and professionalism in the CRM industry

As summarized in the last section, the findings of Vernon's 2013 survey coupled with feedback from ACRA's Board of Directors in 2014 identified challenges related to issues of achieving sustainability and sustaining professionalism in the CRM industry. These challenges have overlapping components. Sustainability of the industry incorporates individual business viability, competition, personnel issues, and the political and economic environments (government, economy, policy, and contract issues). Contracts have been grouped here with political and economic environments, as Vernon's 2013 survey results indicated that 85 percent of the respondents worked on federal contracts. Sustaining professionalism subsumes personnel issues and industry standards and ethics.

A sustainable CRM industry obviously depends to a large extent on maintaining and minimizing erosion of the state and federal laws and regulations

that provide the framework for historic preservation in the United States. To achieve this, efforts must continue to be directed toward educating legislators, government agencies, and the public about the benefits of historic preservation and the necessity of affording them protection at least at the current or increased levels. System gaps, such as a dearth of adequately informed, trained, and funded professionals on the government side of the system that relates to cultural resources (agency cultural resource specialists, SHPOS, THPOS, and FPOs, and contracting personnel), must also be addressed by state and local governments. The issue of providing adequate training for CRM professionals, including a firm grounding in professional ethics, before they enter the industry must primarily be addressed within the educational system, but the industry has a role in this as well, through internships and other means. Once working within CRM, individuals must have appropriate and affordable continuing education opportunities to allow them to follow a meaningful career path. The success of these efforts depends on establishing mutually beneficial partnerships between relevant organizations and associations and working together with them to achieve industry goals.

The viability of individual CRM companies relates to their effectiveness as businesses, and clearly the majority of the responsibility for following appropriate business practices and ethics falls upon company owners and principals. Without appropriate and informed oversight, however, competition can drive down the needed quality of the expected product. Competition has been an issue since CRM began in earnest in the last quarter of the twentieth century, but now, less-than-suitable quality and inappropriately low pricing are becoming ingrained in government contracting practices. In many cases, agencies are transparent about choosing the lowest bid once contractors meet the low expectations of the government for qualifications, relevant experience, and approaches to management of cultural resources. State and Tribal Historic Preservation Offices, the entities set up to monitor process and report quality, have always been consistently underfunded, well below the funding levels established when the Historic Preservation Fund was created. Agencies have begun to associate compliance with rote, mechanistic approaches, which undermines the very tenets spelled out in the NHPA for evaluating the significance of historic properties in the public interest. Using the word "research" in a proposal is often more of a liability than not.

Practitioners of CRM/CHM around the world bemoan the fact that the results of work conducted in the context of CRM/CHM must be communicated more effectively to the various publics that support our work (financially through taxes, or otherwise). We generally limit the meaning of "stakeholder" to its narrow definition in the laws and regulations, but in reality, it is whatever we define it to be. After all, if the majority of work in archaeology, history, ethnography, architectural history, historic architecture, and historic preservation in general in the United States is conducted

within the framework of CRM,[3] and up to $1 billion is spent on it annually, don't we owe those who are paying for it a recounting? For decades, we have been operating under Jennings' (1985: 281) indictment: "one can also suggest that CRM is extraordinarily wasteful and inefficient if one measures funds expended against useful data recovered and disseminated."

Recent work by Heilen et al. (2016) details the successes of the CRM industry in terms of research contributions made through "compliance" work. Understudied resources and regions are now better known, 90,000 properties are now listed in the NRHP, innovative heritage management programs have been developed, vast amounts of data are available in statewide databases and in curated collections, and important new research findings and new knowledge are now available as a result. This has been accomplished despite the impediments to research that the industry faces. Many of these impediments have been identified, including weakening of laws and regulations; lack of authority, funding, and expertise; reactive, project-by-project approaches; cost-cutting spirals; temporary staffing; inadequate training; limited availability of reports and data; inconsistent data quality and methods; and limited synthesis of findings. Although some of these concerns did not emerge from the 2013 Vernon survey, this was likely due to their being no survey questions related to these issues. Broader, industry-wide issues such as data and collections management were raised by the 2014 ACRA Board comments, and these and other issues are treated elsewhere in this volume (see Note 2 and Chapters 1, 12, and 16, this volume).

Very little has been written formally on the issue of industry practitioners' sense of professionalism, which is perhaps more accurately stated as a lack of perceived value by practitioners of their role or perhaps more accurately that CRM professionals do not value themselves or their work. Zorzin (2015: 116–117, 124, 128) develops the idea that the use of capitalist logic seems to lead to different levels of alienation of CRM work from society and also to the alienation of its practitioners. He uses a case study from Quebec (Canada), where contract archaeology represents almost 75 percent of all archaeological activities (Zorzin 2010). One could argue that the Canadian case is not directly comparable to U.S. practice, as in Canada there are no overarching, country-wide laws or regulations mandating a consistent approach to the management of cultural resources. Instead, heritage management is subject to the mandates of each Canadian province. Thus, the inconsistent and fragmented approach to cultural resources in Quebec could be said to further contribute to the sense of alienation and anxiety felt by practitioners, many of which become demotivated and leave the profession altogether. However, in spite of the differences between the Canadian and the U.S. situations, Zorzin provides compelling insights into the question of whether contract work is able to bring satisfaction and can produce a product that can give meaning to practitioners' efforts.

Archaeologists go into the field for reasons that should not be alienating, but the actual conditions of labor within which they find themselves prevent career fulfillment. Zorzin (2015: 128) relates this to the fact that Canada, the United States, the United Kingdom, and Australia are the most advanced examples of neoliberal societies where all human actions are brought – or attempts are made to bring them – into the domain of the market (Harvey 2005: 3), in the belief that the well-being of mankind can best be advanced through privatization, deregulation, and withdrawal of the state. Sound familiar? My point here is not to go into a Marxist explanation of why CRM practitioners don't value themselves or their work, but to point out that the very system that drives development (and thus our work) may be one of the primary causes for the profession's low self-esteem and perceived lack of value. To generalize from one of Zorzin's (2015: 126) points, clients (government and private) pay for the CRM industry's expertise, but their hiring decisions depend on the rules of market competition. Decisions are commodified and based on minimization of expenses, not on professional standards and qualifications nor on the quality of work and its potential results and dissemination of knowledge among communities. While Ferris and Welch (2015: 75) agree that the commodification of resources is part of the framework of CRM work, particularly with regard to archaeology, they also note that it is within this applied form of practice where heritage resources are more regularly and routinely negotiated and engaged with by society beyond academic corridors. In their insightful summary of ethics in contemporary North American archaeological practice, they acknowledge the angst that constantly runs through self-reflexive considerations of the ethical dilemmas associated with applied practice (Ferris and Welch 2015: 7). Zorzin (2015: 123–124, 131–135) also speaks to what he refers to as an "ethical void" and "ethics washing," which further contribute to CRM practitioners' career alienation and demotivation.

Disciplinary uncertainty about CRM can be linked to the development of the "New Archaeology" in the 1960s and the rise of heritage management soon thereafter (Wheaton 2006: 198; see also Chapter 1, this volume). Universities, while improving, are still not fully responding to the need to adequately train CRM professionals. This could be related to a basic and persistent disciplinary split between traditional research-based cultural resources work and the need for archaeological, architectural, historical, and cultural anthropological training with heritage management content. Studies have shown that the uninterrupted growth of a scientific field depends upon the existence of a scientific community permanently devoting itself to the field (Ben-David and Collins 1966). A new idea (i.e., CRM beginning in the 1970s) is not sufficient to spur sustained growth in a new field; a new role must be created as well. Growth of a discipline occurs when and where persons become interested in the new idea, not only as intellectual content but also as a potential means of establishing a new intellectual identity and particularly a new occupational role.

In the United States, first- and second-generation CRM professionals are similar in terms of training to their academic cohorts. This has hindered the effectiveness of ACRA to some extent because traditionally, training in how to successfully run a business has been minimal, with an intellectual focus geared more toward academic recognition and success. Practical training in ethics and their application is uneven, and many academics practicing archaeology refuse to become Registered Professional Archaeologists and do not urge their students to do so. Skills needed to succeed in CRM are taught within more than one department, so there is no one place that students can go to truly gain the academic and practical skills they need to bring to a career in CRM. Some historic preservation certificate programs or Master's programs in applied topics have been developed, and this has provided a useful training option for those wishing to pursue it, particularly because internships are often required.

It is clear from this discussion that CRM firms must maintain intellectual links with universities in order to provide quality intellectual input about appropriate training for future employees. The industry must develop and provide relevant, ongoing continuing educational opportunities, possibly in partnership with university colleagues. CRM practitioners must continue to value professional involvement in the disciplines in which they are trained and be involved in relevant professional organizations.

The concluding section of this chapter examines ACRA's role in achieving sustainability and sustaining professionalism in the industry.

ACRA's role in achieving sustainability and sustaining professionalism in the industry

In early 2015, ACRA's 2010–15 Strategic Plan was revisited and updated, according to best practices in strategic planning. The starting premise was that the CRM industry has evolved significantly since ACRA's founding in 1995. Thus, it was time for ACRA to increase its legitimacy and leadership as the only national trade association for CRM firms and to achieve better outcomes for its members and the CRM industry. The 2015 document builds on earlier statements of purpose developed by the association, such as "to provide education and support for members in the area of cultural resources management"[4] and the mission statement articulated in the 1994–95 ACRA "Founders' Memo" ("To promote the professional, ethical, and business practices of the cultural resources industry, including all of its affiliated disciplines, for the benefit of the resources, the public, and the members of the association."). Finally, it also reflects the mission, vision, and values statements articulated in the 2010–15 ACRA Strategic Plan (ACRA 2010). However, the tone of the 2015 document is strikingly different in that it is much more forward looking and outcome driven (ACRA 2015).

ACRA's current vision no longer reflects inwardly on the association itself but refocuses on the industry as a whole and asks how we want the world to

be different in 20 years as a result of our efforts: "A robust and thriving cultural resources management industry delivering responsible solutions that balance development and preservation and enjoying strong support from clients, government, and the public." The 2015 mission expands on the revised vision and focuses on those things the association is uniquely suited to accomplish, specifically those that are measurable and can be accomplished in a 5–10-year period: "ACRA improves the quality and effectiveness of cultural resource management firms, advocates for conditions that allow the cultural resource management industry to thrive, and supports responsible cultural resource management solutions." The revised strategic plan dropped the values articulated in the 2010 document and simply states that "The Board agreed that ACRA's Code of Ethics (www.acra-crm.org/code-of-ethics) is an accurate statement of the organization's values." The board prioritized outcomes for the association to achieve over the next five years and accepted that the board and its executive team were accountable for ensuring these outcomes are met by adjusting strategy and committee work plans as needed. Each outcome is associated with defined activities and outputs that contribute to achieving three desired outcomes.

- Outcome 1: Enhanced Appreciation of the Public Value of the Cultural Resource Management Industry by Clients, Regulators, and the Public.
- Outcome 2: Improved Cultural Resource Management Practice that Delivers Responsible Solutions that Balance Development and Preservation.
- Outcome 3: Improved Business Efficacy of ACRA Member Firms.

The streamlined and focused approach articulated in ACRA's new strategic plan illustrates the continued growth and maturity of the association, and intended or not, it reflects the successes of many of the activities carried out as a result of the 2010–15 strategic plan. The 2013 Vernon survey asked respondents to prioritize the importance of ACRA's membership benefits, and the results are shown in Figure 9.3. ACRA members and nonmembers alike recognized the association's efforts in the areas of advocacy, education, partnership building, and increasing industry visibility and influence. Advocacy is the leading area where ACRA is expected to help CRM practitioners (Figure 9.4), followed by educating, helping businesses to grow, and supporting policy, although some other support areas included upholding standards, representing everyone (taken to mean firms of all sizes), networking, improving benefits, enhancing membership, and improving wages.

The outcomes, activities, and outputs that make up ACRA's new strategic plan represent the association's revitalized approach toward ensuring industry success, ultimately defined as a sustainable, viable CRM industry staffed by professionals whose work and profession are valued. This plan links industry success with individual firm success and sets up a framework for enhancing appreciation of the public value of the industry. It also commits

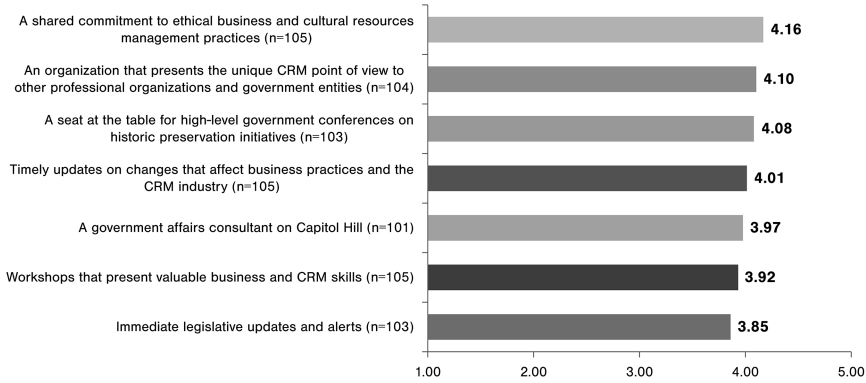
A shared commitment to ethical business and cultural resources management practices (n=105)
4.16
An organization that presents the unique CRM point of view to other professional organizations and government entities (n=104)
4.10
A seat at the table for high-level government conferences on historic preservation initiatives (n=103)
4.08
Timely updates on changes that affect business practices and the CRM industry (n=105)
4.01
A government affairs consultant on Capitol Hill (n=101)
3.97
Workshops that present valuable business and CRM skills (n=105)
3.92
Immediate legislative updates and alerts (n=103)
3.85
1.00
2.00
3.00
4.00
5.00

Figure 9.3 Responses to survey question: "Thinking about [ACRA] membership, on a scale of 1 to 5, how important are the following membership benefits, with 1 being "extremely unimportant" and 5 being "extremely important"?

Source: From Vernon Research Group 2013: 124

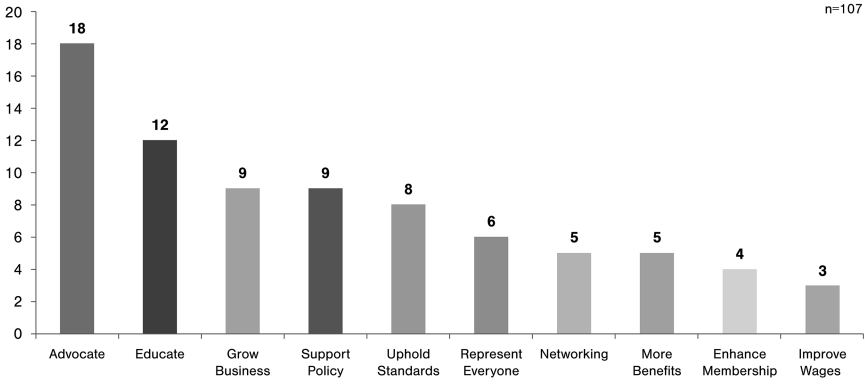

Figure 9.4 Responses to survey question: "In what way can ACRA better help you and your business?"

Source: From Vernon Research Group 2013: 130

to improving CRM practice in order to deliver responsible solutions to the development vs. preservation conundrum and to improving the effectiveness of ACRA member firms. Time ultimately will tell, but ACRA is positioned to be one of the key participants in sustaining the nation's ability to manage its cultural resources for the benefit of the public. The benefits of a CRM industry context where the profession and its practitioners are valued cannot be overestimated. ACRA is already providing a framework for achieving this. For me, the association's draw has always been that it is the one place where it is possible to set aside the competitive aspects of the industry and focus on addressing the common challenges that face the totality of CRM.

Acknowledgments

I am grateful to Frank McManamon for organizing the 2014 SAA Symposium where I presented an earlier version of this paper and for inviting me to contribute a chapter to this book. Between 2014 and when this chapter was submitted, I had the opportunity to develop my thoughts on this subject further, hopefully to good effect. Thanks to Jeffrey Altschul, Michael Heilen, and Teresa Krauss I was able to find several key references that assisted me in developing my arguments. In 2014, the ACRA Board of Directors reflected on the challenges facing ACRA and the industry and provided me with thoughtful input that I have incorporated into this chapter. All of the figures appear courtesy of ACRA, and graphics staff Andrew Saiz and Jacqueline Dominguez at Statistical Research, Inc., ably modified them from the originals to more suitable formats for publication. Finally, I am grateful to Frank for his insightful comments as I was developing this chapter, but in the end I am responsible for the final product. Any opinions expressed in the chapter are mine alone and are not to be read as official positions of ACRA.

Notes

1 The Gas and Preservation Partnership (GAPP) was formed in 2013 to explore collaborative and voluntary practices that would allow natural gas companies to advance their business goals while also valuing the several hundred thousand historic and cultural resources that might be impacted during operations in the active U.S. shale plays (these operations were exempted from Section 106 review). This novel approach of empowering hydraulic fracturing experts *and* historic preservation experts with win-win solutions outside of a regulatory environment has drawn intense interest from other energy sectors. In 2015, GAPP evolved into LEAP (Leaders in Energy and Preservation). Leaders include representatives from Shell, the Hess Corporation, Southwestern Energy, and the Society for American Archaeology (SAA), among others. LEAP (www.energyandpreservation.org) devises voluntary practices and technological innovations that will help energy companies manage risk and protect significant cultural resources.
2 To address the broader issues relating to the curation and management of archaeological collections, ACRA helped to form and participates in the Archaeological Collections Consortium (formerly the Joint Task Force on Collections), which brings together representatives of ACRA, SAA, and the Society for Historical Archaeology to promote collaboration among and between archaeological organizations and affiliated professionals to address a number of collections-related challenges.
3 Ferris and Welch (2015: 74) note that the vast majority of all archaeology practiced in North America (80–90%) is CRM archaeology.
4 From ACRA's IRS Form 990 Purpose Statement.

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Part III

CRM challenges and opportunities

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10 The archaeology of Barbie dolls, or, have our CRM methods become artifacts?

Heidi Roberts

My goals in this chapter are three-fold. First, I provide a personal perspective by examining what a contract archaeologist can accomplish in her own 40-plus-year career working in the trenches. My second goal is to examine what Cultural Resource Management (CRM), as an industry, has achieved in the part of the Western United States where I have spent most of my career, so far. Finally, my major purpose in this chapter is to provide a set of recommendations regarding how the business and conduct of doing CRM can be improved for the future. What are the procedures, skills, and requirements that can be adjusted to make the business of doing archaeology that is focused on CRM more efficient, effective, and productive?

One dig bum's statistics

Since this chapter represents a personal perspective on the accomplishments of CRM I begin by examining what one person, for example myself, who grew up in CRM has achieved in her CRM career. Like many archaeologists who began their professional careers in the 1970s, I am a Baby Boomer who became obsessed with archaeology at a young age and spent my career in the emerging field of CRM. My first dig at age 17 opened the gate to my future, and after acquiring formal education credits, and practical excavation and survey skills at various field schools, government, and contract jobs, I began my career as a "shovel bum," working my way up the management ladder. I conducted surveys and excavations throughout the Western U.S. until I settled with a young family in Las Vegas, Nevada. There I started my own archaeological consulting firm. At this point, my personal goals were simple. I wanted to earn enough to pay someone else to clean my house and to have the flexibility to spend more time with my young children. Once my company started signing contracts, Richard Ahlstrom joined my firm and together we built HRA into one of the region's largest "small" CRM firms. While our company grew in size, our goal was to stay "hands-on" and continue to participate in and supervise fieldwork directly. Today, many years on, we still are supervising and working on projects throughout Utah, Nevada, and Arizona.

To provide some perspective on what an archaeological contractor accomplishes over a lifetime of fieldwork, it is informative to consider all of the

survey, site examination, and data recovery projects and reports in which I have been involved. Let's calculate the acres surveyed, the archaeological sites recorded, and the major features, such as pit houses excavated. As of January 2014, this estimate includes the intensive survey of over 176,000 acres (roughly four times the area of the District of Columbia) and the writing or editing of at least 1600 archaeological site forms – give or take a few hundred. If you assume that each form contains eight pages of information, the sheets, placed in a line would extend for 2.2 miles. In addition there is a wall of reports that have been read by a relatively small number of people and cannot be distributed to the public (Figure 10.1).

In the field, I estimate that I have inspected or cleaned at least 5,432 m of backhoe trenches, and participated in the excavation of 126 large pit

Figure 10.1 Heidi Roberts standing in front of a bookcase holding the reports she has written in her CRM career

Figure 10.2 Heidi Roberts in a Virgin Anasazi pit house excavated for the Jackson Flat project at Eagle's Watch (42KA6165) in southern Utah

structures or small rock shelters (Figure 10.2). This does not include all the hundreds of other small features and empty test units of which I have supervised the excavation or excavated myself. Since I am a trained bioarchaeologist, I estimate that I have excavated, recorded, examined, analyzed, and interpreted at least 161 human burials. Lastly, regarding publications that I have written and others can read, I have authored or co-authored at least 27 peer-reviewed journal articles or major publications and presented at least 35 papers at professional meetings. Multiply this body of products by the hundreds of other CRM firms or individuals conducting CRM work in the western States where I have worked, and the numbers expand considerably. A logical next set of questions involves what knowledge or understanding of the past and present has all this activity produced in addition to the physical records described above.

What have we learned in southern Nevada since 1974?

The larger and more important question that must be asked is what has the CRM industry accomplished since government regulations and procedures were implemented for the planning consideration and preservation of cultural resources? How can one quantify these achievements? Fortunately, a

study that my company recently completed with the help of Gnomon Inc. (Drews et al 2012), the Nevada Rock Art Foundation (Quinlan 2012), Western GeoArch (Mayer et al. 2012), and four former and current professors – Barbara Roth (2012), Margaret Lyneis (2012), Kevin Rafferty (2012), and Claude Warren (2012) – sheds light on this question (Roberts and Ahlstrom 2012). In 2011 the Bureau of Reclamation, Lower Colorado Region, obtained a grant from the Southern Nevada Public Lands Management Act to award us a contract to update southern Nevada's 30-year-old Prehistoric Context. When the State Historic Preservation Offices were established across the United States, one of their goals was the development historic contexts to assist in the evaluation of property significance. Nevada, like many states began this process, but due to funding constraints, was not able to regularly update the contexts.

Using the Nevada archaeological site database, environmental data, and excavation reports, my southern Nevada team was able to quantify the areas that have been intensively surveyed, tally the sites recorded, and examine site distributions through time and space. We also amassed all the radiocarbon dates from excavated components, looked at changes in obsidian sources through time, and made progress synthesizing the archaeological data that has accumulated in the last 30 years (Roberts and Ahlstrom 2012).

We calculated that almost a quarter of southern Nevada's lands has been intensively surveyed, which has resulted in the documentation of over 9,000 archaeological sites. One of the most important achievements of CRM in the last 30 years has been the identification of areas containing concentrations of archaeological sites. Many of these archaeologically sensitive areas have been placed into historical districts and other types of special management areas. Clark County Wetlands Park, Sloan Canyon Conservation Area, the Corn Creek National Register District, Warm Springs, Gold Butte, Arrow Canyon, and the Las Vegas Springs Preserve are just a few archaeologically significant and sensitive districts that have been inventoried, evaluated, and set aside as preserves that will be protected and managed as such in perpetuity.

The implementation of CRM laws in Southern Nevada has resulted in the excavation of over 100 archaeological sites that could not be avoided by development projects, and these excavated sites yielded 400 radiocarbon dates and numerous other types of data. Gnomon synthesized the 9000 recorded archaeological sites in the Nevada Cultural Resource Information System (NVCRIS) site database to provide the Prehistoric Context's team members insight into site distributions throughout prehistory (Drews et al. 2012).

Barb Roth (2012) of the University of Nevada, who summarized the Paleoindian (11,150–10,850 BC) and Archaic periods (9050 BC-AD 200) made several new observations about the archaeological record during these periods. She observed that Early Archaic (9050–5550 BC) sites are concentrated near springs and lacustrine settings, which support inferences of an ancient focus on the use of wetlands resources posited by an earlier generation of archaeologists. The large number of Pinto points, characteristic of the Middle Archaic period (5550–2050 BC), suggests that use of the region

continued to increase despite drier conditions during this period. Many of the Middle Archaic period sites are associated with ground stone and thermal features, and site locations shift to upland settings. Roth hypothesized that the shift of human settlement to pinion forests and the prevalence of ground stone in upland regions during this period supports the beginning of a greater subsistence focus on pine nut use.

The number of radiocarbon dates available increased dramatically for sites from the Late Archaic period (2050 BC – AD 200) and later; however, many of these dates come from rock shelters, which appear associated with ritual rather than domestic activities. Portable artifacts interpreted as ritual-related include split-twig figures, prayer sticks, and incised stones and they suggest the beginnings of ritual behaviors focused on caves. The site data show that mortars and pestles are common in the lowlands. From this, Roth (2012) inferred the addition of mesquite resources, which would have been available primarily in lowland locations to Late Archaic diets. In southern Nevada, maize farming was introduced at the end of this period, and the earliest evidence for farming was recovered from storage pits at the Larder site in the Las Vegas Valley at 200 BC (Ahlstrom 2008). Farming began in the Moapa Valley at Black Dog Cave a few hundred years later (Ahlstrom and Roberts 2012).

Our study demonstrated that regional cultural differences, within southern Nevada, begin during the Puebloan period, around AD 300 (Ahlstrom and Roberts 2012). Margaret Lyneis' research at the Yamashita site, which she summarized in the appendices of the new context report, provides firm new evidence that the Puebloan period can be extended over 100 years to AD 1200–1300 (Lyneis 2012). An important discovery made by Lyneis is that prehistoric pottery was not just made in the Moapa Valley, but it was also manufactured in the Las Vegas Valley, at the Corn Creek Dune site, and also in Ash Meadows located in the Armagosa Valley (Lyneis 2011a and 2011b). In both of these locations temper was procured from the adjacent mountain ranges, and used to make pottery during the Puebloan and Post-Puebloan periods. Additional research on pottery temper and clays in the Moapa Valley and the eastern edge of the study area by Lyneis (2005) has shown that pottery was often made in the uplands and transported to the Moapa Valley.

Research that has focused on Puebloan period has provided temporal refinements, new data on subsistence strategies, and important insights into regional trade networks. Using subsistence data from previously excavated sites, Rick Ahlstrom (Ahlstrom and Roberts 2012) demonstrated that – while farming was the main subsistence focus in the Moapa Valley during the Puebloan period – wild resource procurement, particularly yucca and agave, were still important. Because of the rapid pace of development in the Las Vegas Valley, excavation data obtained from that region has transformed our understanding of past lifeways. We now know that between AD 500 and 1000 Las Vegas Valley's occupants lived around springs and supplemented wild plant and animal resources with corn and squash. During this period they lived in shallow pit houses and made pottery. In the Valley houses resemble wickiups rather than pit houses or pueblos, plain gray ware

pottery was locally made only in very small quantities and was undecorated, and maize was stored with mesquite in pits. This pattern can best be explained by adoption of Puebloan culture traits by an existing population that retained a high level of mobility.

Other contributions to our understanding of prehistory were summarized in the Prehistoric Context by Kevin Rafferty (2012) and Angus Quinlan (2012). Rafferty synthesized the evidence for Patayan influence in southern Nevada. From his chapter we learn that the appearance of Colorado River folks can first be seen in the southern region of Nevada, particularly in Las Vegas Wash, by the mid-eleventh century. This influence consists of new pottery manufacture styles, earth figures, and rock art. Patayan rock art and pottery have been reported throughout southern Nevada and particularly along the Colorado River as far east as Utah.

Many of the sites investigated in the last 30 years in southern Nevada date to the Post-Puebloan period after AD 1300 (Roberts 2012). Over 50 sites that have been excavated in southern Nevada date to this period. The data from these sites indicate that the shift from settlements in open settings to rock shelters and upland regions was dramatic. At the Yamashita sites in the Moapa Valley, Puebloan habitations are re-occupied by groups who make Great Basin brown ware ceramics (Lyneis 2012). Pottery assemblages at sites dating to this period are generally mixed, and contain buff, gray, and brown wares. In fact, I suggest that ceramics are a poor temporal indicator, although Patayan pottery seems to be the most common type. Luminescent dates on brown ware and gray ware offer conflicting evidence that brown ware may have been made earlier than previously assumed and gray ware later. Desert side-notched points are perhaps more temporally sensitive. Incised stones, which have a long history of use in the Great Basin, but do not appear in Puebloan sites, also make an appearance at sites in the Moapa Valley (Roberts 2012).

One of the most important recent discoveries at the Larder site (Ahlstrom 2008) in the Las Vegas Valley, and by Karen Harry (2008) in the Moapa Valley, is that farming likely continued throughout this period, but perhaps at a lower level of intensity. In the Moapa Valley storage shifts from surface structures to pits in rocks shelters, which hints that this behavior is linked to increased mobility and the need to hide food stores. This behavior led me (Roberts 2012) to suggest that a causal relationship exists between the introduction of Patayan pottery and intaglios in southern Nevada beginning around AD 1050 and the abandonment of the Moapa Valley by Puebloans.

Improving CRM for the future

Clearly, much new knowledge has been gained in the last 40 years thanks to the legal, regulatory, and procedural requirements that required the CRM investigations summarized in the last section and others like them. We have expanded our knowledge base, perhaps even beyond the original expectations. In addition, many sites have been identified and evaluated. Some of these resources are being preserved for present and future uses, such as

research, interpretation, or other public benefits. Readers may be wondering how Barbie dolls fit into this text. The answer is simple; these cultural icons of the recent past now are found in the archaeological record and their presence epitomizes one of the challenges that face the next generation of CRM archaeologists. In the final sections of this chapter, I will summarize several of the challenges for CRM in the coming decades and offer my perspective on how to address them.

Considering the description and analysis of the recent portion of the archaeological record

In the Western United States, the first Barbie dolls are officially artifacts, that is, the earliest examples of these dolls now are old enough (50-plus years) so that, if found in archaeological contexts and determined to be capable, with proper analysis, of addressing important historical or scientific research questions, they could contribute to the historical significance of the sites in which they are found. When I started doing archaeology, historic artifacts were things I could associate with my grandmother's farm. White ware and other nineteenth- and twentieth-century ceramic sherds, carnival glass, and other Depression era or earlier artifacts that required documentation and might be worthy of analysis. As my career progressed, artifacts, and sites, became younger and younger until I was recording beer cans and realized with horror that I would soon have to start documenting aluminum top cans with the first pull-tabs. I swore to myself that I would retire before recording a Barbie doll.

Then it happened. My crew returned from a survey near Laughlin, Nevada and showed me this picture of what we now call "the Barbie Massacre site" (Figure 10.3). We agreed the Cabbage Patch dolls in the mix made this scatter too recent, but we had to stop and think about Barbies, and I decided to write a paper on Barbie doll chronology. As I began my research, Barbie turned 50 and the stock market tanked. My dreams of soon becoming a happily retired dig bum flew the coop and recording Barbies seemed inevitable. Could sites like "the Barbie Massacre site" even be significant?

Barbie was the brain storm of Ruth Handler, who with her husband Elliott and a partner, Matt Matson, founded Mattel in 1945 (Mattel 2015). Ruth discovered a Lilli doll during a trip to Germany and she bought a couple during her trip. Lilli was modeled after a German comic strip of a working girl who knew what she wanted and knew how to get it. Ruth believed that American girls would like a grown-up doll because she had watched her daughter playing with teenage paper dolls. After Mattel's approval of the idea, Ruth designed a doll that resembled Lilli and she named the doll after her daughter Barbara. Barbie debuted at the American Toy Fair in New York City in 1959 and was an instant hit. Mattel sold 350,000 dolls the first year.

Barbie was one of the first toys marketed entirely on television. Today, Barbie is a cultural icon, she has had a street in Times Square named after her and has even been painted by Andy Warhol. She is sold throughout the

Figure 10.3 "The Barbie Massacre Site," photographed by HRA crews during an archaeological survey

world and has been remade over and over again to fit changing cultural patterns. Barbie Dolls have become as American as apple pie. Barbie, her friends, and her family have wormed their way into our culture forever growing and changing with the times. She has held dozens of careers. Barbie has even been on Saturday Night Live as "gangsta bitch" Barbie and Tupac Ken; she has been the subject of songs: and, perhaps most American of all, she has been involved in numerous law suits.

But let's return to consideration of the Barbie Massacre site and the implications for contemporary and future CRM. When does a Barbie scatter become an archaeological site, eligible for recording and consideration as part of a CRM investigation? Well, due to differences among the public agency offices or State Historic Preservation Offices (SHPO) that require or regulate CRM, this depends on where the project is located. In Utah you would need to come across at least 10 Barbie parts, from different Barbies, in a 10 m area and in Arizona those numbers increase to around 30. Nevada has a strict policy on Barbie, and if you find two parts from different Barbies less than 29 m apart you should begin the paperwork.

Once you record the scatter you must decide if that site might be eligible for the National Register of Historic Places (NRHP). Frequently, archaeological sites are considered eligible for the NRHP if, with appropriate study,

they have contributed or have the potential to contribute important information. Taking this into consideration, in the 1990s a Finnish physician named Dr. Nairn began researching girls and their treatment of Barbies. What he discovered is that they frequently mutilate and dismember their Babies at certain times of their lives. Is this what is going on at the Barbie Massacre site? If so, can study of the Barbies found there have the potential to address important research questions? The exact answer to such a question isn't important here, but Barbie provides a vibrant metaphor for relatively recent, yet in some sense historical artifacts that increasingly in the modern "throw away" culture populate the landscape in which CRM field investigations occur.

Before acting too hastily and recording hundreds of Barbie sites or thousands of pull-tabs, perhaps we should take into consideration the cost. I estimate that during a 10-mile highway survey, costs will increase by a factor of 10–20 percent because of the additional fairly recent sites (site and isolated artifact densities on my recent surveys have increased by a factor of 20–30 percent since pull-tab aluminum cans hit the 50-year mark) that will need to be recorded. And my estimate of increased costs is conservative. David Yoder (2014) recently evaluated the impacts of the "50 year" archaeological site rule. He estimated that in the last decade there has been a 254 percent increase in the number of historical sites recorded as part of CRM investigations in the state of Utah as a result of the need to record "modern" historic trash. Rathje and others (e.g., Rathje and McCarthy 1977; Rathje and Murphy 1992; Majewski and Schiffer 2001) have shown that important historical and contemporary patterns can be detected and analyzed to obtain useful information from the study of modern trash. However, this should not lead to the wholesale recording of contemporary trash scatters on the CRM landscape and their contents. Without carefully designed research designs and strategy, studies of such modern deposits are unlikely to yield important information. The potential research value of fairly recent trash scatters is rather low. Professional communities and organizations in states or regions should develop guidelines and standards for dealing with this part of the archaeological record in the areas where they carry out investigations.

Professional training and licensing for CRM

Once in a meeting attended by agency archaeologists, the SHPO representative, and a cast of thousands, Rick Ahlstrom and I were advised that the lithic flakes, a very common type of prehistoric artifact in that region, were special and different. The local participants at the meeting even offered to show us what flakes in that region of the Great Basin looked like. By and large, it is a myth that regions have highly unique artifact assemblages that only specially trained folks can identify. Basic lithic technologies and even most chipped, ground, and polished artifacts and projectile point styles across the Western United States have been defined and well described.

Most agencies require archaeologists working in their state or jurisdiction to have extensive regional experience. In some cases, tenured professors, with

specializations in archaeology and prehistory, and dozens of years of CRM and teaching experience, cannot obtain agency survey or research permits because they lack the months of required regional experience. The Secretary of Interior's Standards were originally established as a guideline for qualifications, but today most graduate students cannot access regional databases to conduct research projects simply because they lack required regional experience.

The current permitting process focuses on education and length of experience conducting surveys or excavations in specific culture areas, geographic regions, and time periods, rather than demonstrating proficiency in professional skill sets. When Baby Boomers established this process, they based it on the system that had been in place for institutions to obtain research permits. The focus of this process was on education and regional experience, rather than demonstrating proficiency in CRM. Once an archaeologist earns a graduate degree and accumulates a certain number of weeks or months working professionally in an area, they are considered qualified to conduct an archaeological survey, identify and record archaeological sites, evaluate them for significance, prepare a survey report, prepare a research design or historical context, etc. Unfortunately, the present process does not require archaeologists to demonstrate proficiency in any of these skills. It simply assumes that over a certain amount of time, an archaeologist working in a region will accumulate the experience and knowledge to take on these tasks. However, the process as currently configured does not ensure that the archaeologist simply by doing professional work will become competent to perform the functions necessary for a CRM professional.

Today most graduate programs do not offer specific degrees in CRM. Many do not even offer course work on CRM topics. There is no way of even ensuring that these skills are being taught in other courses. Does a graduate degree in Anthropology – at the Masters or Ph.D. level – combined with regional experience ensure the public that an archaeologist is competent to practice? Do employers train technicians and supervisors when they are hired, or do they assume that an archaeologist with a graduate degree must already have acquired these skills somewhere along the way? Many regulators, agency archaeologists, contractors, and others will tell you that archaeologists are not receiving adequate preparation to function as a professional archaeologist.

Other service professions, such as the legal and health professions, require individuals practicing professionally to hold a license. The licensing process ensures the public that that person is competent to practice in that profession. People obtain a license in many professions and industries after they have undergone a combination of education and training, followed by an examination. Nationally, the Register of Professional Archaeologists (RPA) maintains a system of registration for professional archaeologists. This is intended to ensure a certain quality and level of performance by RPA archaeologists. The RPA system includes an independent panel of professionals to review grievances brought against RPA members for alleged unprofessional activities and a system of sanctions if such grievances are upheld by the

review panel. However, this national system does not delve into the detail that CRM practice in particular states or regions might require.

It is my opinion that archaeologists should be licensed on a state by state basis. Licensing would force the educational system to train archaeologists to achieve proficiency in the skill sets needed by CRM professionals. It would force the discipline to decide what those skill sets should be, and it would provide an independent vehicle to ensure that the standards are met. Agencies wouldn't have to spend countless time and energy permitting archaeologists and policing work quality, and the burden of training and permitting employees wouldn't fall as heavily on contractors. It's a win-win solution to a complex situation that many feel is spinning out of control.

The profession needs means of accessing and synthesizing existing data and information

At one time many SHPO programs developed more or less detailed written reports describing important historic contexts that were useful for evaluating the significance and comparing the relative historic or scientific values of newly discovered or recognized historic properties, including archaeological sites. It was the intent in most case that will be updated regularly to guide significance evaluations. Many SHPOs have not had the funding to accomplish these goals. Instead the burden is placed on contractors. In some states a research design must be prepared before permission is given to conduct every postage stamp-sized or larger archaeological survey. Do we really need a write a five-to-ten page culture history and research design before conducting a small archaeological survey? And what about the culture histories that must be included in each survey report? The intent of the historic context was to make the process of significance assessment more systematic and consistent. Wasn't it?

On the other hand, historic context studies are expensive to prepare and, depending on the pace of new CRM work in a region or state, they may become obsolete rapidly. One solution to these challenges would be to have SHPOs set up committees composed of contractors, agency specialists, and other regional professionals who could meet annually and develop a list of several important topics and questions. That way, all CRM practitioners could focus on relevant issues until resolution is achieved. As part of this effort SHPO offices could recommend that CRM firms and agencies collect and maintain excavation data, such as radiocarbon dates and obsidian sourcing, in spreadsheet formats for easy access. A large component of synthesis is compilation and maintenance of these data.

Data and information about chronological and historical developments in the past, often referred to as culture history, is particularly important as part of context studies. Each archaeological site or temporal component of a site represents a brief period in time. Data from many excavation contexts are needed before we can identify specific ancient cultural groups or populations, make reliable estimates of group size, understand their resource base, and learn how these parameters vary across time and space. Since the 1970s many

of the Baby Boomers, just entering the profession then, were educated in "the New Archaeology" of those days. In many cases, this new perspective and approach shifted their professional focus to understanding culture change and process. Descriptive research and interpretation of culture history was seen as less important. Over the course of a career, one thing I have learned is that we cannot understand why something changed until we know what those changes were. In some regions, like the Mojave Valley along the Colorado River, no sites have ever been excavated and culture history is a blank slate.

Putting into practice what has been learned about finding and evaluating sites

Site discovery CRM investigations need to use methods and techniques that will be effective for finding resources. It is not always the case that the best way to find archaeological sites and evaluate for intact buried deposits is to visually examine the modern ground surface and excavate small units. Figure 10.4 shows me on one of the most ridiculous surveys I ever did. The huge trees littered the forest and made walking near impossible and visibility nil. If only lithic scatters are anticipated, why not survey the area after it's burned?

Excavating a 1 x 1 m-unit is not an adequate window to locate and evaluate buried cultural deposits. This topic is given extensive coverage in *Archaeology in Three D* (Seddon et al. 2011), which summarizes much of

Figure 10.4 Heidi Roberts standing in a dense thicket of deadfall during an archaeological survey in northern Arizona

what has been learned in recent decades. In the heavily vegetated eastern and midwestern parts of the United States, the need for subsurface testing to discover sites has long been recognized. The effectiveness and utility of different methods and techniques of site discovery have been investigated (e.g., McManamon 1984; Lightfoot 1986; Kintigh 1988) In the western United States, where archaeologists traditionally have relied on surface detection to identify archaeological sites, it has become clear that many time periods are "invisible." This is caused either because sites of some periods are buried beneath the surface and cannot be detected by surface inspection alone or they do not have temporal markers. The matter is complicated; agencies that are responsible for managing sites and archaeologists need to be more proactive in evaluating the geomorphology of a project area early in the process. New techniques like Lidar and ground penetrating radar hold great promise to resolve some of these issues.

After many years of digging, I am convinced that there is NEVER enough money and time to complete excavations in that picture-perfect way we all imagine it should be done. Figure 10.5 shows a classic conundrum. It was the last day on the Jackson Flat Reservoir Project when we discovered that the Archaic pit house we had just finished carefully digging in 1 x 1 m units had a second pit house underneath that extended under the main datum on the right.

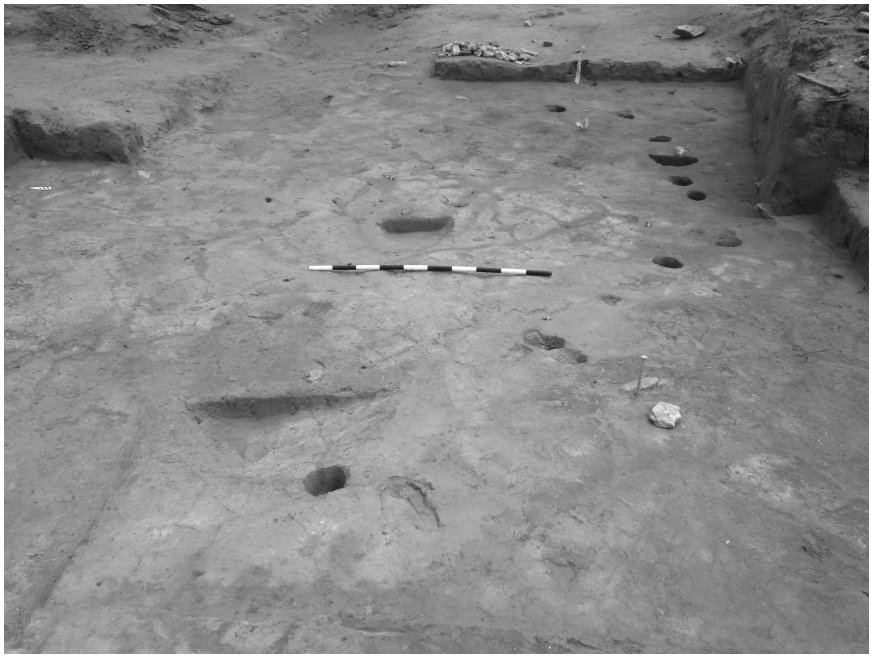

Figure 10.5 The excavated floor of an Archaic period structure beneath which a second structure was discovered (Jackson Flat Reservoir Project, Feature 60, 42KA6164, Locus 1)

Since we were out of time, we exposed the remainder of the feature by backhoe. Looking back and comparing the mechanically stripped versus the hand-dug I am not sure the months of slow and careful excavations were really worth the additional expense (Figure 10.6).

Our profession needs to encourage new methods and innovations, like mechanical screens, customized excavation gear, and other equipment that can reduce field costs and improve precision. On a recent project about 25 percent of the entire budget was spent on labor to screen soil for artifacts. Reviewing the results of this effort, in my opinion, this money would have been better spent on radiocarbon dates, turquoise sourcing, and element analysis on clays. I believe that innovation, rather than theory, is the key to understanding the past.

My hope is that by identifying these important challenges the next generation of CRM professionals, whether they are running the investigations, reviewing the work done by others, or making policy, can implement changes that will result in a more efficient system.

The future of CRM holds many challenges, but the next generation is up to tackling them. The way Baby Boomers set up the system may not be the best way to proceed in the future. In fact, this chapter identifies a number

Figure 10.6 The buried structure referred to in Figure 10.5 after the upper fill was exposed with a backhoe near the last day of fieldwork, at the Jackson Flat Reservoir Project (Feature 60, 42KA6164, Locus 1)

of adjustments that should be made. Site recording systems created in the early 1980s are outdated. So are some of the CRM field procedures and methods. I encourage critical analysis regarding what data are important and how to most efficiently and effectively identify it, report it, and save it. We know a lot more about this process than we did 40 years ago. Conservation should be our goal, yet creativity is the key to protecting the past for the future.

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11 Using CRM data for "big picture" research

David G. Anderson

Introduction

Much of the archaeological research, big picture or otherwise, performed in our country over the last 40 years has come about directly or indirectly from Cultural Resource Management (CRM) investigations. My own career has been defined in many ways by CRM, and while I started in archaeology a few years earlier, my first full-time job was in 1974, a year of key events for the development of CRM, with the passage of the Archeological and Historic Preservation Act. I spent the next 30 years doing CRM for university-based contract programs, private companies, and the federal government, where I was fortunate to remain employed full-time, save for comparatively brief detours to earn advanced degrees. While I have been in academia the last 14 years, I still think of myself as a CRM archaeologist, since I believe responsibly managing cultural resources is a critically important part of what we do as archaeologists, and since most of the archaeology students I have trained will be employed in, or train students who will be employed in, CRM for some or all of their careers (e.g., Anderson 2000, 2003). I thus have CRM to thank for my career, and so, I believe, do most of my colleagues in American archaeology today (see also McManamon and most other chapters in this volume).

Employment in archaeology since the 1960s

Simply looking at the numbers and nature of practitioners is one way to demonstrate the role CRM has played in the growth of the profession in the United States. Melinda A. Zeder's (1997) classic census, *The American Archaeologist A Profile*, that was conducted in 1994, recounted some of these results, including the growth of public and private sector employment, the increasing representation of women in the field, and the increased production of graduate degrees of all kinds, but especially the Ph.D. A marked increase in Society for American Archaeology (SAA) membership numbers occurred following the onset of the CRM era. To provide some perspective, the SAA was founded in 1934, and there were approximately 75 attendees at the first annual meeting in 1935 (Colwell-Chanthaphonh 2009: 157–165).

SAA membership in 1974 was 4,257, and it was still possible to print everyone's name and address in *American Antiquity* (SAA 1974). SAA membership in 2016 is over 7,000, due at least partially to the growth of professional employment provided by CRM (Altschul and Patterson 2010).

The years from 1966 to 1974, following the passage of the National Historic Preservation Act, witnessed particularly rapid growth in our profession, as agencies began to gear up to meet its mandates regarding archaeology and historic preservation. SAA membership grew from 1,900 members in May 1968 to 3,300 members in May 1970 (Kelley 1970: 528), and grew by another 1,000 members from 1970 to 1974. Klinger (1975: 94–97) examined changes in 42 state archaeological programs from 1970 to 1974, documenting a 50 percent increase in funding and a 30 percent increase in employment over this interval. CRM was thus having a major impact on our profession, even before the Archeological and Historic Preservation Act of 1974 was passed (PL 93–291, also known as the Moss-Bennett Act) that, among other things, put funding for CRM-based archaeological investigations on a secure footing (e.g., Fowler 1982; Green 2008; King 2007, 2012; McGimsey 1972; McGimsey and Davis 1977; McManamon, this volume; Schroedl 2009: 67). Perhaps not coincidentally, the Society for American Archaeology Committee on the Status of Women in Archaeology was formed in 1974 and, arguably, the increasing numbers of women at all levels of the profession in the decades since can be tied, in part, to the employment opportunities, direct and indirect, CRM has provided (Nelson et al. 1994; Rizvi 2008; Tomásková 2008).

My first SAA annual meeting was in 1974, in Washington, D.C. The attendance was about 1,500, and the number of papers was below 1,000. At the 2014 meeting where the papers that led to this volume were presented, there were about 4,000 attendees and some 2,000 papers (Rodning 2014). SAA meeting attendance and presentations have thus grown markedly over the past 40 years. The year 1974 was also the first year I attended an annual meeting of the Southeastern Archaeological Conference (SEAC), in Atlanta, where 284 people registered (about half the membership), and there was only one session, with about 75 papers presented overall, as opposed to the multiple concurrent sessions that characterize that meeting today. SEAC membership now stands at about 1,000, and on the average 600 people attend the annual meeting, an increase comparable to that seen in the SAA, and a pattern no doubt paralleled in other parts of the country (Anderson and Sassaman 2012: 20–21).

The number of people gainfully employed in archaeology in the United States remains somewhat murky, and fluctuates with changes in economic and political conditions, but in 2009 industry leaders estimated that there were about 14,000 CRM professionals at all levels working in the United States (Altschul and Patterson 2010; Doelle and Althschul 2009: 27). Add in another few thousand in academia and museums and encompassing archaeologies of all kinds (i.e., Classical, Near Eastern), and the total is

probably somewhere around 20,000. The Bureau of Labor Statistics projected a 19 percent growth rate in anthropology and archaeology from 2012 to 2022, above the average 11 percent growth rate projected over all fields over the same period (Bureau of Labor Statistics 2016). The same report, however, noted that "Jobseekers will likely face very strong competition," meaning success requires a willingness to work hard, both in the field and in analysis and reporting. Archaeology may not be a 9 to 5 job, but the profession, and especially CRM, where great opportunities for advancement exist for those who love to run research projects and write reports, has provided me great personal satisfaction.

Publication growth in archaeology since the 1960s

Perhaps the most obvious and impressive result of CRM archaeology on the national and international scene is the growth in our field's record of publication. Over the past 40 years, in the region I am most familiar with, the southeastern United States, hundreds of books and technical monographs have been produced, many the direct result of or summarizing and synthesizing CRM work (Fogelson 2004; Anderson and Sassaman 2012). In every state these volumes are the foundations of knowledge that need to be read in order to practice archaeology competently, while the innumerable shorter papers and reports produced are essential when conducting work on specific topics or in specific areas. Anyone who ignores the CRM literature and data/collections records when conducting research is missing the boat in terms of scholarship. This happens all too frequently, often through no fault of individual researchers, but because this work is almost impossible to find or access. Indeed, making the results of archaeological practice readily available to researchers is the greatest challenge we must face as a profession if we are to succeed in big picture research, or indeed arguably of archaeological research of any kind. Fortunately, solutions are emerging that will, over time, make finding and using archaeological data much easier than at present.

But first, big picture research must itself be understood as a relative and ever-changing concept, particularly in scale and specificity. Major site excavations or large-scale survey projects encompassing entire reservoirs, or major highway, channelization, or pipeline corridors, have traditionally been about as big a research opportunity as it could get in CRM, and many of the leading figures in our profession in recent decades cut their teeth on such professional work. This has resulted in analyses and syntheses of archaeological and historic data from these projects, and from extensive tracts like national forests and wildlife refuges, military bases, or other state and federal agency facilities. Indeed, most major federal installations have produced some level of overview summarizing their cultural resources, many created through innovative research involving data from hundreds if not of thousands of sites. While these certainly qualify as one type of big picture research, and certainly at the largest scale most archaeologists are

familiar with, our capabilities have expanded to include even broader levels of analysis both in terms of scale and the amounts of information brought to bear on our questions. That we can call for and conduct analyses on such scales, I would argue, is a direct result of the success of the CRM enterprise that our nation has been embarked on in recent decades.

A vast quantity of archaeological data has been produced in the last half century, much of it from CRM-mandated work. In 1993, the total number of recorded archaeological sites nationwide was just under one million (National Archeological Database 1994). Based on data from the Southeast, where the numbers increased ten-fold from about 15,000 in 1970 to 180,000 in 1994, and doubled again to 376,000 in 2011 (Anderson and Horak 1995; Anderson and Sassaman 2012), if the same trends hold in other regions the nationwide total, at least for the lower 48 states, now likely stands at around two million site records. Hundreds of thousands of technical reports have also been written, and in the Southeast alone almost 45,000 had been documented in the National Archaeological Database (NADB) in 2004, while the nationwide total was about 350,000, a number acknowledged to be far from complete (Childs and Kinsey 2004; tDAR 2017a). As the Southeast regional NADB coordinator for a decade for the National Park Service, I would estimate the potential number of archaeological citations of all kinds in the region to be somewhere between 75,000 and 100,000 (Anderson and Sassaman 2012: 29–30). Vast quantities of artifacts, special samples, and records have also been generated, and managing these collections has been a herculean task, fortunately one heroically undertaken by many of our colleagues (Childs and Corcoran 2000; Sullivan and Childs 2003; Trimble and Marino 2003). Managing all of these site, report, collections, and other records remains an ever-present challenge and accessing and linking these data is critical to successful big picture research (Kintigh 2006; Kintigh et al. 2014a, 2014b; Snow et al. 2006).

Accessing and integrating archaeological and other data

To use CRM data for research and management purposes, archaeologists must compile their vast holdings, save it for posterity, and develop procedures to use it effectively. Recent papers by some of the leaders in American archaeology highlight 'Grand Challenges for Archaeology" (Kintigh et al. 2014a, 2014b), detailing the kinds of important, big picture questions our field is exploring. These questions encompass issues like how leadership, social inequality, market systems, and other aspects of human civilization emerge and persist, how human societies respond to changes in the environment and shape that environment, and so on. But if we are ever to answer these questions, the authors state, we must become better at accessing, using, and improving the primary data we are generating in such vast quantities:

> the greatest payoff will derive from investments that allow us to exploit the explosion in systematically collected archaeological data that has

> occurred since the middle of the twentieth century. Unfortunately, at present these data are, overwhelmingly, difficult to find and access. Both the modeling and the synthetic research will require far more comprehensive online access to thoroughly documented primary research data and to unpublished reports and other documents detailing the contextual information essential for the comparative analyses.
>
> (Kintigh et al. 2014a: 19)

Resolving this problem is the greatest and grandest of the grand challenges facing our profession in the twenty-first century, and one that needs to be addressed using a range of tools and approaches.

Fortunately, solutions are appearing, although implementing them will take the work of many people. Given the resources that went into generating the archaeological data stored and maintained nationwide, however, the next steps are achievable for only a tiny fraction of those sums, and these costs will be quickly repaid in improved research and management capabilities. With properly organized information, we will at last be able to explore grand questions with the best data we have been able to muster. This is a recursive relationship, for by exploring big picture questions with data integration and management in mind, we learn what we need to do to refine our practices. How do we do this? Efforts have been underway for decades, as exemplified by program like NADB, and a host of other research projects collecting and collating data at large scales. Only fairly recently, however, has the technology and storage become available to meet the challenges of working with truly 'Big Data', a concept with varied definitions and investigative approaches (for surveys of definitions see Dutcher 2014 and Ward and Barker 2013), but one under which the masses of extant archaeological information can clearly be considered to fall.

The largest and most successful effort to date to compile and manage archaeological data at a national scale in the United States has been tDAR, the Digital Archaeological Record [www.tdar.org/], created and managed by the Center for Digital Antiquity, which has been leading the profession in the United States in the compilation, long-term storage, and use of digital archaeological data (McManamon and Kintigh 2010; McManamon et al. 2017). As noted previously, NADB compiled citations for hundreds of thousands of CRM reports from the late 1980s to the early 2000s, but only recently has the technology existed to make these reports accessible online. Unfortunately, the agency developing NADB, the National Park Service, discontinued support for it. There were no substantive updates made after about 2004, and the data on the website where they were maintained has been archived (NADB 1993). Fortunately, in 2011 the Center for Digital Antiquity, in a major service to the profession, migrated all the NADB report citation records into tDAR, where they are readily accessible, can be edited and made more accurate, and linked with pdfs of the actual documents, and new entries can be easily added (Flores 2014). As the authors of the Grand Challenges paper noted "our survey emphatically reinforced the need

for the kinds of online access provided by [tDAR] the Digital Archaeological Record" (Kintigh et al. 2014b: 879). I emphatically agree: finding and accessing the vast amounts of archaeological information already produced, as well as the new information coming in all the time, is absolutely critical to effective research and management.

Open Context [http://opencontext.org] is another example of a digital repository dedicated to similar goals as tDAR, and both it and tDAR are referenced by the NSF archaeology program as options for data management and archiving in archaeology (Kansa 2010; Kansa and Arbuckle 2014; Kansa and Kansa 2010). In addition, many other research organizations, state historic preservation offices (SHPOs), and individual researchers have been developing online project, site, and report databases, some with provision for long-term storage. Most of these, however, are subject to maintaining funding streams, and the actuarial realities of the individuals or agencies maintaining these programs and datasets, and when funding is unavailable, information can be lost or difficult to access. These are things that must be considered when curating digital as well as more traditional forms of data. A good rule of thumb when curating digital content is to consider how long the repository will likely be in existence, how accessible the data will be, and whether mechanisms are in place to migrate it to new mediums as these develop.

Research at the progressively large scales of analysis

Turning back to big picture research, at present excellent work is being done at the installation and in some cases at the state level. Analyses now routinely occur considering data from thousands of sites and hundreds and sometime thousands of square miles. Two significant examples of predictive modeling and analyses of environmental associations of sites by period include Jason O'Donoughue's (2007) work on the Francis Marion National Forest in South Carolina, based on a sample of 1,883 sites from an area of 404 square miles, and Erik Johanson's (2011) work on the Kisatchie National Forest in Louisiana, based on a sample of 4,175 sites from 944 square miles. Johanson tested the site locational models previously produced on nearby Fort Polk with somewhat smaller sample sizes, 2,690 sites from 309 square miles (Anderson and Smith 2003) and produced a model with greater predictive accuracy, showing there is always room for improvement, especially when larger data samples are available. The fact that the primary data for these analyses has been compiled and curated in digital form means more work with it can occur, if the data are made discoverable and accessible in an appropriate digital repository, such as tDAR. These, of course, are but two of the hundreds of such analyses that have taken place in recent decades, as part of mandated preservation plans and overviews.

There are still larger scales by which research is occurring, most typically at the state level. In the Southeast, under the direction of site file manager Mark Williams and his colleague John Chamblee, Georgia serves as a model

for digital data management and curation, and for a willingness to use this data with interested researchers (Williams 1994, 1995, 2000; Williams et al. 2010). Maps of component occurrence through time across the state have been produced and are updated every few years. A remarkable example of the research results that can come from such efforts has been Chamblee's (2006) work with mound and site distributions from Middle Woodland through Late Mississippian times, which highlight dramatic changes in population, settlement, and political complexity over this interval. Not only are the Georgia site files linked to GIS data layers encompassing environmental and land use variables, but also to the kind of archaeological survey coverage that has occurred. Furthermore, the Georgia site file digital data are amazingly detailed, giving diagnostic artifacts, archaeological culture and phase designations, and references or links to scanned technical reports and listings of artifacts in collections. Indeed, the state's entire CRM literature has been scanned in pdf format and is accessible through the site files, much as reports nationwide are being compiled in tDAR. Many Georgia reports, in fact, are also already maintained in tDAR (e.g., tDAR 2017b). Archaeological data compiled in this way at the state level can be used to examine an array of research questions at large geographic and vast temporal scales, with maps of site incidence throughout prehistory. Many states have site file data in such a form already, or are working toward that goal. The next step is integrating this data at even larger scales, across subregions, regions, and continental scales. The challenges are to make sure the datasets we are using have the best possible data in them, are comparable, and can be linked together.

Fortunately these challenges are being met, in distributed approaches to research and data organization, compilation, and dissemination that serve as models to emulate. Our digital data can and should be curated at places like tDAR and Open Context, but it always has been and will continue to be distributed, that is, generated and maintained by many different groups, and ideally there should be multiple solutions for its storage and use. Research thrives best when there is freedom for experimentation, and critical to linking disparate datasets and approaches is to do so while allowing for the maintenance of diversity. At present digital data is generated and maintained by a range of individuals and organizations, and responsibility for compiling it is equally diffuse. Site file managers and museum curators are typically the first and all too often the only people attempting to standardize and integrate this data, typically from multiple projects and investigators. Some federal agencies, again taking examples from the Southeast, the region I know best, are also making significant efforts to coordinate information over large areas, such as work with the National Park Service collections databases (e.g., NPS 2017) or the Tennessee Valley Authority's multi-state site inventories (e.g., Meeks 2009; Pritchard and Ahlman 2009). This is not to say that data standardization is unnecessary; it is in fact needed to make datasets comparable. But accepting standardized measures for some content does not preclude the collection of other, particular kinds of data relevant

to specific research; indeed, it would be impossible to stop such activity, nor would it be desirable to do so. Nor does it mean that a repository or group of linked repositories of all digital archaeological reports should not exist, a goal for which tDAR is striving. It should. Doing archaeological research would be easier if our datasets, images, reports, and other products were readily available, subject to fair use, copyright, confidential data restrictions, and other concerns, which organizations like tDAR and Open Context have been careful to ensure are met. Indeed, if the information we generate – from field notes, photographs, analysis records, and reports – was more readily accessible, I suspect many of us would take greater care in our collection and organization of that content.

But to achieve large-scale data integration in archaeology, more opportunities are needed for information specialists and managers to talk to each other, especially to colleagues in other states, museums, or agencies, or even in the same agency but at different installations. Workshops bringing site file managers from eastern North America together have resulted in remarkably beneficial interaction (Anderson and Horak 1995; Wells et al. 2014). In March 2014, as part of an NSF-funded project to integrate site file data – the Digital Index of North American Archaeology (DINAA) project – a workshop was held in Knoxville to develop procedures for linking large archaeological datasets (Figure 11.1). Database managers and researchers from universities and state and federal agencies across Eastern North America were present, with 29 people attending in person, together with Skype participation and presentations from several others. As many of the participants said again and again, just being able to talk to and learn from each other was worth the trip. As one site file manager noted, when shown how to clean large datasets using Google Refine (as opposed to one record at a time), "my colleagues will be crying tears of joy when I show them how easy it is to clean their data."

Large datasets in archaeology are growing more numerous as more and more researchers see their potential and are increasingly comfortable with large-scale data management, and with sharing information online. Artifact and radiocarbon databases exist in many areas, some the result of teams of scholars working collaboratively, of which one of the best known is CARD (2017; see also Gajewski et al. 2011), the Canadian Archaeological Radiocarbon Database, encompassing > 36,000 determinations. CARD is now being expanded to encompass much of the United States under the direction of Robert Kelly and colleagues at the University of Wyoming (Kelly 2017). Another recent example of an openly accessible online research database, in this case developed by a single person albeit with the input of a lot of colleagues, is Andrew White's Eastern Woodlands Household Archaeology Data Project (White 2013, 2017), which has compiled information on over 2,000 prehistoric residential structures from nearly 300 sites in eastern North America. Another collaborative effort is PIDBA, the Paleoindian Database of the Americas, linking site and avocational collections records together provided by more than 100 contributors to examine early occupations and their relation to environmental conditions at very large,

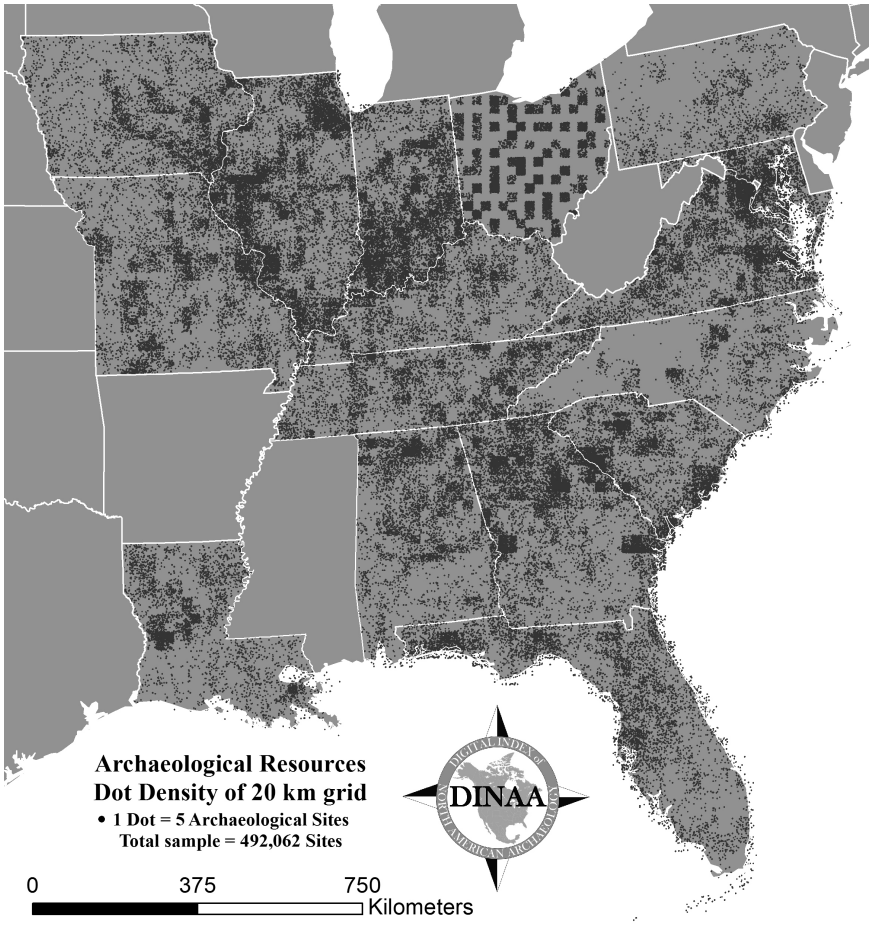

Figure 11.1 DINAA (Digital Index of North American Archaeology) archaeological site inventory data as of August 2017 within states whose data has been received thus far. Dots do not refer to exact site locations, but to groups of five sites whose position has been randomly distributed within 20x20km grid cells. The Ohio site data is presented by county level only.

Source: Image by Stephen J. Yerka, adapted from Wells et al. 2014, DINAA 2017

continental scales (Anderson and Miller 2017; Anderson et al. 2010; PIDBA 2017). Documenting and accessing data online, and using geophysical and remotely sensed data at increasingly larger scales, are examples of the kind of efforts in the service of big picture research that are becoming more and more common in American archaeology. Solutions to the problem of how to bring the data in these disparate projects together, that is, to make them interoperable, are also emerging.

An example of big picture/Big Data-driven research

The DINAA project, managed by Josh Wells, Eric Kansa, Sarah Whitcher Kansa, Stephen Yerka, and myself, is a multi-institutional collaboration developing online methods of linking archaeological data from multiple sources and making it readily accessible to researchers (DINAA 2017; Kansa et al. 2017; Wells et al. 2014). DINAA operates something like a web search engine, such as Bing or Google, with the site number as a basic identifier, linking archaeological datasets together. DINAA is designed to facilitate the examination of various kinds of archaeological data with a range of environmental variables like physiography, climate, and biota, in the past, present, and projected for the future. It thus serves as a tool for examining changes in human settlement and land use over time, as well as predicting the impact of future environmental change on cultural resources. Resource location data for spatial distributional reporting is at a coarse, 20-km scale, with no sensitive locational or other kinds of data (i.e., sacred sites) reported or maintained online.

DINAA launched in 2012 as a publicly accessible compilation of existing archaeological site file data. It embraces current best practices in scientific data management including open standards and open licensing, transparent version control (of both data and source code), Linked Data, and iterative development. In consultation and cooperation with government, academic, and tribal stakeholders, our team has completed a first 'proof of concept' phase of the project, linking site file information from nearly half a million archaeological sites in 16 states in the eastern United States (Figure 11.1), as well as links to information recorded by site number in these states currently in CARD, the Eastern Woodlands Household Archaeology Data Project, PIDBA, and tDAR and using it to conduct analyses of various kinds. Access to these repositories/databases is retained by their managers; essentially, DINAA points to where archaeological or other data is located, but users must access it by going to the data provider directly. DINAA cannot be used as a substitute for the CRM compliance process, nor does it serve as a digital curatorial repository. It does show how archaeological data from many disparate sources can be linked and used for a wide range of research and resource management purposes. Through Open Context, DINAA is archived with the California Digital Library [www.cdlib.org/], a world leader in digital preservation. As of July 2017, 22 states are actively working with the DINAA team, with a major goal the indexing and linking of site file data from across the continental United States, making research databases and report repositories like CARD, PIDBA, and tDAR even more useful for research and management purposes.

DINAA thus promotes information sharing and integration, not only of archaeological but paleoenvironmental, biogeographical, physiographic, and other data characterizing our environment. DINAA has open-ended applications allowing researchers, land managers, and interested members of the public to examine the nature and scale of human responses to the dramatic fluctuations in temperature, biota, and sea level that have occurred

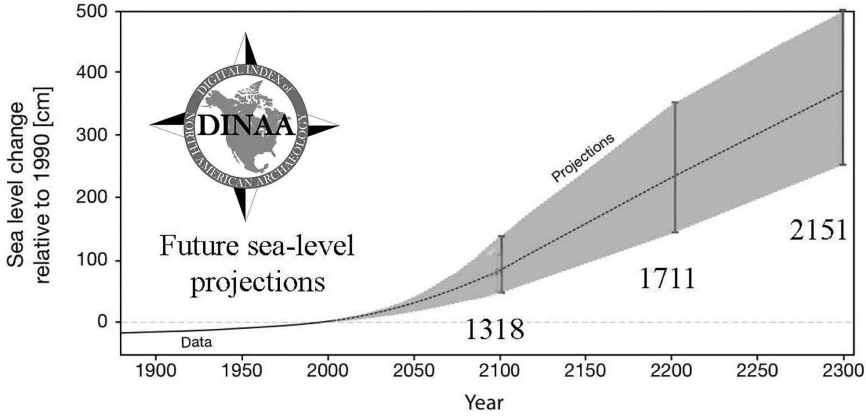

Figure 11.2 Numbers of cultural properties classified as eligible for inclusion in the National Register of Historic Places that will be submerged given a 1, 2, and 3 meter rise in sea level

Source: Image by Stephen J. Yerka; sea level data chart adapted from Allison et al. 2009, property data from NPS NRHP 2016; see additional details in Anderson et al. 2014, 2015, n.d.

over the ca. 15 millennia people have lived in the Americas, and help inform our understanding of possible human responses to similar changes predicted for the future, questions of critical importance. To give one example of how the kind of large-scale research we expect will become commonplace when DINAA or tools like it are operational, site locational information can be plotted against elevation to predict losses due to sea level rise in the coming years. In the southeastern United States, in the Coastal Plain extending from the Texas-Louisiana line to the Maryland Virginia area, ca. 14,000 known sites will be covered given a 1 m rise, which is projected for the next century, and ca. 25,000 if sea level rise continues as predicted, to between 3 to 5 m in the century or two after that (Anderson et al. 2014, 2015, n.d.). Over 1,000 locations already listed as eligible on the National Register of Historic Places will be submerged given a 1 m rise, with nearly another 1,000 lost given a 3 to 5 m rise (Figure 11.2). Archaeologists and land managers alike will need to reconsider their research priorities in light of such numbers.

Conclusions

Making the vast quantities of data created by historical and archaeological research more accessible to the public through tools like tDAR, PIDBA, CARD, and DINAA, allows people to gain a much greater appreciation for the long record of history and culture that has occurred in the United States, while at the same time cultivating information management skills and research at scales previously largely unfathomable. Data-driven big picture archaeology can provide unparalleled insights into long-term human-environmental

interactions. Such knowledge is critical to making well-informed forecasts and policy decisions about the consequences of rapid climate change, extreme weather events, and burgeoning populations, factors that will shape our civilization profoundly in the coming centuries. Our species has witnessed comparable periods of dramatic change in the past, and understanding how we responded then can no doubt provide lessons, and hope, for the future. The continued growth and well-being of our profession, and of the big picture research we do, is clearly intertwined with CRM.

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12 The development of archaeological collections management strategies

The U.S. Army Corps of Engineers approach

Michael K. Trimble and Andrea Farmer

Introduction

The long-term care and use of our national public archaeological collections generally follows and is part of developments since the late 1940s in public agency archaeology and cultural resource management (CRM) in North America (see also, Chapters 1 and 3, this volume; Sullivan and Childs 2003). From the late 1940s to the 1970s, federal agency, and in particular, U.S. Army Corps of Engineers' (Corps) archaeological collections were gathered and processed, to varying degrees, by universities or museums as part of various salvage archaeology efforts, mainly associated with reservoir construction on major American river systems (e.g., see Petsche 1968; Banks and Czaplicki 2014). These institutions and the archaeologists who excavated the objects generally processed and cataloged the collections because they were seen as scientific data that had short- and long-term value to the institution and nation (Sullivan and Childs 2003). With the development of CRM in the 1970s, archaeology firmly became a planning and compliance activity conducted as part of public agency "undertakings" at the state and federal levels across the nation (McManamon 1992; Childs 2003; see also Chapters 1, 2, and 15, this volume). The "organization of archaeology" and recovery of material remains shifted from being primarily excavated by academic and museum research institutions to private companies conducting general CRM investigations, in particular archaeological studies of various sorts. Most often these activities were executed as contracts with state and federal public agencies (Childs 2003; see also Chapters 3, 9, 10, 13, and 14, this volume). During the development of North American archaeology in this period, processing and cataloging the scientifically derived archaeological collections increasingly became to be seen as a significant part of the archaeological process. Similarly, the backlog of archaeological collections that were not properly treated and curated came to be seen as a long-term problem for the discipline and the public agencies responsible for these collections (e.g., Lindsay et al. 1979). In this chapter, we review the approach to curation of public archaeological collections in the United States and, specifically, how the Corps has developed and implemented a national approach to managing these important cultural resources.

From 1975 to about 1990, two major changes occurred in the field. Most major large-scale "salvage archaeology" projects across the country began to wind down and private companies began to supplant the universities and museums who had been carrying out the lion's share of North American archaeology (Doelle and Phillips 2005; Roberts et al. 2004; Childs 1996; Nelson and Shears 1996). Standards of care for archaeological collections were ad hoc and variable, generally because agencies did not focus attention on this aspect of their CRM responsibilities. Also, the financial support from agencies for archaeological resources were primarily for excavating and report preparation – not care of archaeological scientific collections (Childs 1995). Opinions differ on this shift in emphasis, but a lack of rigorous national archaeological curation standards, which did not arrive until 1990, also contributed to poor care of collections and has been seen by scholars as contributing to the collections care problem (Christenson 1979). During this period, a range of systems were used to administer, catalog, and maintain archaeological collections. The long-term care "required" of federal and state collections was not codified until 1990 when the National Park Service published the 36 CFR 79 regulations, which applied to all federal agencies. What happened over the 40-year period from 1950 to 1990 was that the "doing" of archaeology and the production of an investigation report received more attention than the long-term care of the collections (e.g., see Marquardt et al. 1982; Childs 1995).

Beginning in the 1980s, and expanding with the archaeological curation regulations in 1990, people from all parts of the United States concerned with the treatment of archaeological collections and representing various organizations within archaeology and museology, started to organize and preserve the archaeological data for future generations. Their basic premise was the understanding that these are complex scientific collections that can inform generations of future scientists and the public. What was generally understood 60 years ago by the scientific archaeological community, is now seen as key to the survival of the field and the science of archaeology. The recognition that our field is based on scientifically curated national collections has re-emerged as a core value of the archaeological community. The Corps, working often with the National Park Service and other public agencies, is a leader among federal agencies to ensure our national collections are cared for as significant scientific data. With this prelude, the rest of this chapter will examine how the Corps, over the last 30 years, developed a national policy and operationalized this policy into a coherent national archaeological curation program.

Archaeology and curation in the Corps of Engineers

Looking at the development of national policies regarding artifacts, there have been a few major shifts that have affected how archaeological collections are excavated and preserved in the United States. The first federal statute enacted to protect and regulate the proper treatment of archaeological

resources was the Antiquities Act of 1906 (McManamon 1996; Lee 2000; Thompson 2006; Harmon et al. 2006). Section 3 of the Antiquities Act assigned a special importance to the collections made under permits to be issued by federal land-managing agencies for archaeological studies on their lands. These collections were to be placed in public museums for preservation and public benefit (McManamon 2000: 34).

As World War II concluded, federal agencies developed ambitious plans for a national public works program to construct dams, reservoirs, and other water control features on major river systems throughout the United States. Archaeologists familiar with these plans successfully advocated for a program of archaeological investigations to be undertaken collaboratively with this planning and construction program (Johnson 1961, 1966; Thiessen 1999; Wendorf and Thompson 2002). The archaeology activities that developed from this program came to be characterized and known as "salvage archaeology." The acquisition and storage of archaeological collections generated by the salvage archaeology program relied substantially on public museums and universities excavating the sites and housing the collections. These organizations continue to hold much of this material. In the late 1960s through the 1970s, the archaeological community nationally saw the rise of CRM, initially with the involvement mainly of academic institutions, but in its early years, private CRM firms also developed and soon were conducting most of the archaeological investigations under contract to federal, state, and local government agencies (e.g., see Chapters 1, 3, 9, 10, 13 and 14, this volume). This was a significant shift nationwide in how sites were excavated, and where and how archaeological collections were housed.

These private firms quickly became the critical source for this work and were contracted to perform surveys and conduct excavations when traditional universities and state and national museums lacked the time or staff to conduct the work themselves (Marquardt et al. 1982). Archaeology changed almost overnight from an academic profession to a business model based on supply and demand. The Corps, with its large water resource reservoir programs, the Bureau of Land Management, Bureau of Reclamation, and Tennessee Valley Authority, and a host of other federal agencies, contributed to this major systematic change in the national archaeological program. The conduct of archaeological investigations became more efficient, but the long-term care of collections was often neglected because the CRM firms were contracted to conduct individual projects, not for long-term care of the collections that resulted from these projects.

Most CRM firms did not house the archaeological collections that they were responsible for excavating. The federal, state, or local organizations owned or were responsible for the resulting archaeological collections. In general, it is these governmental organizations that are charged with identifying where and how the collections will be housed. With this stewardship role comes the financial responsibility of ensuring for the long-term care of these collections. During the rapid development described above, most

organizations neglected to account for the housing and management of the collections. The result was many collections were housed in facilities that were non-compliant with federal standards for curation facilities and then ignored. These collections ended up being seen as a burden, with disastrous results.

Corps of Engineers curation approach

The Corps has one of the largest archaeological collections in the federal government, and the number of collections grows with each new archaeological project that the Corps undertakes. The Corps' major archaeological program began in 1947 as part of the salvage archaeology activities resulting from the construction of a national water-management system, and it continues today. The program proposed a pilot study to their leadership to determine the state of care of St. Louis collections with an eye to improving care for all district collections. In 1987, cultural resource experts in the Corps' St. Louis District office examined the Corps' regional collections from Illinois and Missouri, which turned out were scattered across the nation. The justification for the study was that examining the size and complexity of collections, as well as curation and housing options, at a regional level might provide answers towards a more efficient and useful system nationally for the agency.

The study concluded that the existing system of curation for state and federal agencies was inefficient, costly, and most importantly the scientific collections were generally in very poor shape. The findings determined that collections were being stored in hundreds of curation facilities, museums, universities, and CRM firms' offices across the nation (Meyers and Trimble 1993). In general, the system was characterized as an 'attic approach' with care, accessibility, and frequently effective accountability, put off until some future date. While some collections were stored in state-of-the-art facilities with the most advanced of cataloging systems, the majority of the collections were languishing in locations where they were often times neglected and stored in less-than-optimal environments.

The key set of recommendations, based on this study, which were adopted over the next 30 years became a policy and plan for the entire Corps that was efficient, achievable, and based on regional curation. Before we describe the Corps' approach, it is instructive to briefly review the variety of approaches that have been utilized during the last half century for context.

Approaches to collections curation

In the United States during the late nineteenth century and the early twentieth century, two national laws were passed for the protection, management, and recognition of archaeological and historical resources: the Antiquities Act, described above, and, in 1935, the Historic Sites Act. These laws and their

regulations were enacted to protect sites from looters, regulate archaeological investigation on federal and tribal lands, preserve significant collections in public museums for research and public education, and systematically recognize nationally important cultural resources. These laws and regulations were written in general terms and did not describe how collections were to be handled by implementing proper storage and handling procedures. Nor did they address the importance of preservation of the documentation associated with collections, which is integral to the interpretation of the artifacts in relation to their original context and method of recovery. It was not until mid-century when the National Historic Preservation Act, and its many amendments, became law that regulations, specifically 36 CFR 79 in 1990, with more detailed descriptions of the proper care and curation of public archaeological collections were published.

There have been several successful curation paradigms developed over the last 80 years to address the need for improved collections storage and management by various agencies, primarily the Department of the Interior and its National Park Service (NPS). The four main approaches to curation we will discuss here include: (1) the public/private partnerships, (2) non-profit endeavors, (3) regional curation, and (4) the development of the Veterans Curation Program, created by the Corps.

The current Corps' policy and operational plans for curation have focused on the last two listed approaches. All of the approaches come with their own strengths and weaknesses. The various approaches discussed, however, empower and provide for collections managers the assets to better preserve collections and make them more accessible to researchers and the public.

Public/private sector partnerships

Public/private partnerships are the original model by which archaeology was first carried out at the national level and many examples continue today. Under this system, museums would have archaeologists on staff that would go out and excavate collections – and select artifacts which would often be put on exhibit. Museum collections also would grow based on donations from private patrons, including many artifacts lacking provenience but were still deemed to have important cultural significance. This type of collecting started out as more of an *ad hoc* collecting program than a scientific study, but that changed during the late nineteenth century. Museums at that time began formulating ethical protocols for the collection of artifacts and enforcing collections management strategies that aligned with their mission, as opposed to simply trying to amass significant artifacts for exhibit. Today, museums now house not only their collections, but collections from federal and state organizations. Similar to the non-profit model seen in other organizations in the United States, this approach serves as a way for museums to generate funds to build and maintain their infrastructure and care for their own collections. At the museum level, it is a dominant model.

Non-profit endeavors

Non-profit endeavors are a way to use donated funds to establish a curation system that will eventually become self-sustaining. There are only a few of these organizations in the country (Muniz et al. 2011). The San Diego Archaeology Center is one example of a non-profit endeavor that has experienced great success using this model, which provides a home to important collections in the San Diego region (Muniz et al. 2011). As construction boomed in the 1970s and 1980s, staff from a few universities with archaeology programs developed an idea for a practical multi-purpose facility for the storage and management of the archaeological collections resulting from the construction projects in the San Diego area. Initially it was just an idea, but as CRM firms began expanding in the region in the 1980s and 1990s due to the need for housing and highway projects, this "idea" became to be seen as a reasonable way to care for the huge number of collections that were being generated by federal, state, and private construction projects. Many of the people who were financing suburban housing developments had an interest in archaeology, so they donated funds to house artifacts.

Next, a standing committee was formed to found a 501(c)(3), and a building and funds were donated to accept and store collections. One innovation, of many, in the San Diego model were that sections of the building were rented to cultural resource management firms to process collections and as designated office space, which generated further income to support the curation facility and long-term care of the region's archaeological collections (Muniz et al. 2011). These generated resources built the infrastructure and professional staff to become a sophisticated collections center. Another means they devised to generate income was by housing collections for various federal, state, and private organizations. Although not a dominant system seen across the United States, the professionals and citizens of San Diego have made this approach work for the long-term care of archaeological collections. It should be noted in closing that this system is a collections center, not a museum. The success of this idea is that a huge museum staff is not required to provide professional collections' care to a range of institutions.

Regional curation centers

Regional curation primarily of federal and state collections has been proposed and used by a handful of organizations as a way to make curation more affordable and archaeological collections more accessible to researchers and the public (Farnsworth and Struever 1977; Marquardt 1977). The regional curation approach has been used primarily by the NPS with the establishment of facilities like the Midwest Archaeological Center in Lincoln, Nebraska, and the Southeast Archaeological Center in Tallahassee, Florida (NPS 2015a and b; Stoutamire 1977). Originally, the NPS archaeology program was run out of Washington, D.C., where few people could

access the collections (Childs 1995). However, with the shift to a more localized focus in the 1970s by NPS, regional centers were established in areas where the most archaeology was occurring and more importantly where the collections could be housed by professionals on a full-time basis for the American public. This has proved to be a very successful endeavor (Davis 1977; Scovill 1977). Cataloged and accessible collections remain in the Washington D.C. area. The majority of NPS archaeological collections, however, are easily accessible in regional centers or some of the larger park units with adequate curation facilities on site, administered by the NPS near where they were recovered. While many of their collections still remain uncataloged, only because of a lack of resources, the collections are safe and meet federal regulations, which is a statement that cannot be made for most other federal and state collections. So, the regional center model has proven to be strong, and collections housed regionally at professionally staffed centers provide access and value to the American public.

Veterans Curation Program

Since 2009, a fourth way of dealing with archaeological collections has developed as an off-shoot of the original Corps curation program. The establishment of the Corps' Veterans Curation Program (VCP) in 2009 developed when several of the staff who had served during Operation Iraqi Freedom became concerned about many of their military colleagues who could not find employment after returning home from Iraq and Afghanistan (Allen 2014; Dooley 2010). As a remedy for this situation, they proposed to Corps senior leaders the idea of having veterans catalog collections and, as part of this work, learn important and transferable job skills and receive a salary while being trained by collections professionals. In addition, the work done by the veterans would provide the Corps with a positive start on appropriate regional curation for the many collections held, but not properly curated, by the Corps (Pictures of Success 2015). The program received funding. Its successful implementation since 2009 shows that a veteran workforce can successfully aid in the rehabilitation and curation of archaeological collections. They rehabilitate at-risk archaeological collections up to federal standards, including creating digital images and data from the collections, in particular related to artifacts and associated documentation (Leipold 2015).

Corps' programmatic response to curation crisis: an incremental approach

The Native American Graves Protection and Repatriation Act (NAGPRA), enacted in 1990, was the driver for many organizations to focus more on collections management. This federal law and its regulations required the federal agencies that owned or administered archaeological collections to perform large-scale collections assessments. Federal and state agencies and

various other organizations were legally required to look at human remains and associated grave goods. The passage of NAGPRA coincided with the publication of 36 CFR 79, mentioned above, and the federal regulation for all agencies to use in the management of their archaeological collections. In many instances, curation was done hand-in-hand at the same time as NAGPRA.

In response to this law and regulation, the senior leadership at the Corps provided authorization for the Mandatory Center of Expertise for the Curation and Management of Archaeological Collections (Center), located in the Corps' St. Louis division office. This Center was seen by the Corps as a central management organization for Corps Headquarters to provide NAGPRA, curation, and related field expertise for the entire agency. The Center was officially established in the St. Louis District in 1994, following technical center status (1991–93), to deliver centralized management, administration, and policy development for Corps-wide compliance with archaeological collections management. The Center has since expanded its capabilities to meet a growing set of federal cultural, environmental, asset management, and information management requirements. The Center has evolved into a multi-faceted enterprise that maintains state of the science expertise in national and host-nation archaeology, heritage assets management, archival research, knowledge management, intelligence-based historic records research, and rapid deployment of field forensic services including mass graves investigations. Located in the St. Louis District, the Center is the largest single organization in the Department of Defense dedicated to addressing cultural resources and heritage assets management. As part of its mission, the Center oversees the Corps' NAGPRA compliance and serves as a liaison with 38 districts to assist them with their compliance.

Developing a national curation strategy and an incremental approach

The Corps' Archaeological Curation Strategy was formulated between 1989 and 1990 by the Center as a way to address the issue of Corps collections. Once given the necessary authorization and funding from a range of sources in the 1990s, the Center's staff further developed and implemented the strategy. There were seven major steps outlined that needed to be taken to address the biggest needs and determine a solution for resolving these, including: (1) identify where Corps collections are located, which was the biggest challenge; (2) identify potential curation partners who adhered to federal regulations and maintained a facility capable of storing and processing massive collections; (3) agree upon guidelines to ensure that future collections were being processed in a systematic fashion on a much larger scale; (4) develop a collections management database that would allow the curators to better track the collections and be able to make well-informed decisions regarding their movement to an appropriate storage space based

on their size and condition; (5) implement partnerships; (6) consolidate and rehabilitate archaeological collections; and, (7) establish long-term collections management policies.

Each of these steps will be discussed further below, but it is important to note that the processual approach described above was not implemented in the order it had been proposed by the Center. Lack of resources and bureaucratic resistance also slowed the process. However, priorities were adjusted, work was re-programmed until resources could be found, and today the process has a clear vision.

Implementing the archaeological curation strategy

The Deputy Under Secretary of Defense for Environmental Security (DUSD – ES) implemented the Legacy Resource Management Program in 1991. At the same time, the Corps' Director of Civil Works allocated funds for curatorial issues associated with Corps collections. Through this joint national program, the Center's processual approach was executed. From 1991 to 1995, approximately $10 million was allocated for the initial survey work of identifying the extent and specific locations of Corps and Department of Defense (DoD) collections and their contents. Between 1996 and 1999 personnel from the Center conducted curation needs assessments on collections from all active military installations in 39 states and the District of Columbia. This work assessed the capabilities of museums and repositories to house federal collections according to federal standards. Reports on these assessments were produced and made available for use by others (e.g., Trimble and Pulliam (editors) 2000).

The first and most daunting task was to define the universe, in other words, to identify where all of the collections were and assess their condition. The Department of Defense Curation Needs Assessment Project was implemented to conduct an audit of all DoD installations and complete an inventory of natural and cultural resources on DoD lands to define the DoD's archaeological assets (Department of Defense 1996). The DoD Curation Needs Assessment tasks focused on answering two major questions: the first was what collections exist; the second was where are the collections located? The same research questions were pursued for Corps collections using Civil Works funds. To address these questions, it was necessary to perform a physical assessment of collections. When present at these locations, an assessment was made of the current curatorial condition, and a report on the extent of materials. In total, over 11,000 cubic feet of artifacts and over 1,300 linear feet of associated documentation from archaeological projects conducted on these DoD installations were examined.

While identifying the collections, it was also possible to perform a quick condition assessment. Collections that were most at-risk were noted as being a priority for rehabilitation. At-risk collections were those that were in poor condition due to neglect. Artifact collections that were deemed

most at-risk were those where artifacts were stored in acidic containers that were falling apart. Some of the artifacts were stored in acidic bags that had provenience information recorded on them that was fading and/or being destroyed by rodents and pests. Some boxes were packed with heavier artifacts that were destroying more fragile items. For the associated document collections, similar standards applied in that at-risk collections were those stored in acidic containers, as well as collections that contained documents covered in residues from the field, acidic tape, and metal containments. Document rehabilitation would focus on those that required major cleaning and mending and digitization. Some collections were slated for rehabilitation based on the importance of the site and the need to have all portions of the artifact collection and document collection consolidated into one location.

The assessment brought up additional questions. For instance, it was deemed necessary to determine the true extent of DoD collections. Questions further addressed included: how much material do we have? Is it complete or only a partial collection, and where is the remainder of the collection and can it be consolidated? These were all important questions for planning purposes. These data were reported to leadership and helped to determine and justify how much funding would be required for rehousing all our collections to national standards.

Strategy shift: the Curation Options Project

The first and second steps of the Archaeological Curation Strategy were possible to complete considering the available authorization and funding. It was clear, however, that due to resource limitations and occasional bureaucratic opposition, the steps involving the development of guidelines for future collection, development of a collections management database, and implementation of partnerships were not possible immediately, so they were reprogrammed for the future.

To further carry out the steps of the Archaeological Curation Strategy, additional funding was provided based upon the success to date with the program. This enabled the next phase of the strategy, which was to identify potential partners. This was important because it allowed the DoD and the Corps to provide funding, and have partner organizations share the responsibility evenly to implement the Curation Options Project. From 1998 to 2000, the Center conducted curation-needs assessments on the nearly 50,000 cubic feet of Corps' archaeological collections stored in 165 repositories across the nation. The assessments evaluated the repositories in greater detail and identified potential partners to provide long-term collections care. To be designated as a potential partner, repositories had to be in compliance according to 36 CFR 79. Repositories were evaluated based on their facility, including the presence of fire suppression and security systems, adequate and secure storage space, as well as their infrastructure, such as

the presence of adequate and trained staff, ability to effectively manage and store collections, and a clear collections management policy and established curation guidelines (Department of Defense 2005).

Out of this work, general evaluation reports were generated. Numerous curation-needs assessment reports were written, including the DoD East and DoD West Collections Assessments. Repositories that complied with 36 CFR 79 were identified and the foundation was laid for developing partnerships to establish regional curation facilities. These general assessment reports also provided cost estimates for implementing these partnerships, including moving and storing the collections and rehabilitation of at-risk collections. Based on these findings, regional consolidation was recommended to centralize collections into federally compliant repositories. There was also an attempt to look at curation guidelines and establish minimum standards for future collections that could be implemented on a national scale. The findings of these assessments continue to be used for long-term curation planning and to ensure Corps compliance with cultural resources laws and regulations.

Implementing a curation program in the Corps, 2008–15

In a time of reduced resources, it is sometimes necessary to adopt innovative responses to curation challenges and look for new sources of funding. What we are seeing more of today is that many museums are deciding not to accept new collections, more collections are being housed with contractors, as opposed to 36 CFR 79 compliant repositories. In addition, there remains the issue of archaeologists, in both the CRM and academic realms, who stake a personal claim to federal collections and oppose region-based consolidation. To deal with limited resources in areas such as funding, storage capacity, and staffing ability, archaeologists and curators have to be more innovative and more willing to seek out new and different sources of funding.

ARRA, cultural resources, and the Veterans Curation Program: a perfect fit for rehabilitation

The American Recovery and Reinvestment Act of 2009 (ARRA) was passed to create jobs and to provide relief to those most impacted by the recession. Veterans returning from Iraq and Afghanistan were particularly impacted by recession. With the unemployment rate for veterans soaring, it was necessary to create jobs for these men and women. This legislation was a perfect fit for rehabilitation, as it addressed the need for jobs while at the same time brought new funds to federally mandated, yet underfunded, curation work. The Center tied the need to help veterans with the need to rehabilitate collections in an innovative ARRA-funded program – called the Veterans Curation Program – which continues today with Corps funding.

With the development of the Veterans Curation Program (VCP), there has been a new focus on curation and collections management within the Corps and potentially within the entire DoD. The success of this program has made it a viable option for addressing modern curatorial needs. Since 2009, over 300 veterans have been employed and trained in employable skills by the program. Of the graduates, 73 percent have obtained permanent employment with federal agencies, non-profit organizations, and private sector companies. Some have even started and operated their own companies. A further 17 percent of the graduates have continued their education at colleges, universities, and in certificate programs. To date, over 260 archaeological collections and their associated documents have been or are being rehabilitated to meet federal standards. This includes approximately 955 cubic feet of artifacts and 70 linear feet of records. Over 38,000 photographs and scans have been created to provide greater public access to collections.

Through the VCP, which has partnered with 11 Corps districts and over 15 repositories across the nation, we have begun the process of determining minimal curation standards to which Corps' collections should be processed. The Corps has also begun the process of "hanging" the digital files generated by the VCP to an online digital repository for use by researchers, educators, and the public. The Digital Archaeological Record (tDAR), maintained by the Center for Digital Antiquity at Arizona State University, was created to serve as a digital repository with an online component that has allowed for greater content availability on an international scale (The Digital Archaeological Record 2016). Digital Antiquity is operated with a multi-institutional Board of Directors to ensure that it maintains a broadly conceived mission and long-term support to sustain the tDAR repository online and keep costs low for organizations and agencies that want to use this platform for preserving and disseminating archaeological information. The Corps believes that access to our archaeological collections, through this delivery system, will fundamentally change how curation is organized in the near term and future.

The future

We are at a point in our Corps' archaeological program where policy and the operations associated with a long-term curation program can be carried out. The need to establish regional curation facilities and resources to support them is now recognized in Corps' Headquarters. Corps' leadership now understands the long-term benefits of these scientific collections and the benefits achieved through consolidation. Regional consolidation will lead to the economical, optimized use of specialized experts and resources, fiscal control over costs for long-term care, cost savings from economy of scale, and streamlined contracting. As collections are moved out of substandard facilities, a consistent rehabilitation program, built around a continued mission to support the war fighter via the VCP, the potential to partner with

other federal agencies, and increased access to collections for research point to a long-term plan, and bright future.

In 2014, a directive was sent from the Mississippi Valley Division Command to the MCX CMAC to prepare a plan outlining the process for consolidation applied to the Mississippi Valley Division. By August 2015, funds were appropriated for fiscal year 2016 to start work and begin moving collections to a consolidated location. Three regional curation facilities have been approved for the Mississippi Valley Division (from the current 22), and it is estimated that it will take two years to consolidate all of the collections. Additional regional curation facilities are being studied for the Northwest Division and the South Pacific Division.

In addition, in 2016, a VCP expansion was put into motion. The Alexandria location was nearly doubled, and two satellite facilities are developing in Washington with the Colville Tribe and at Arizona State University in conjunction with the Center for Digital Antiquity. These labs will help the Corps take a step to better support their national curation program using veterans from Operation Iraqi Freedom and Operation Enduring Freedom. This model of using veterans to curate and rehouse archaeological collections is current Corps' policy and will continue to be used in the future.

Finally, the collaboration between the Corps and the Center for Digital Antiquity will expand, through the use of tDAR, access to our collections through micro-computers for the entire public. This decision breaks the old paradigm of archaeologists traveling to a repository to access the archaeological collections. A policy decision has been made to display a representative sample in this electronic format to make accessibility more refined.

In a short period of 30 years, the Corps through its leadership and establishment of a Center of Expertise for collections has outlined and begun carrying out a plan for long-term curation of our valuable national archaeological collections. Curators, archivists, archaeologists, geospatial specialists, veterans, and Corps' leadership are all involved and engaged. The next 30 years will be the most interesting in caring for our collections and making them available to the largest audience possible.

Summary

The Corps' collections management strategy has developed from collecting and storing collections across the nation in an ad hoc manner to a more sophisticated system of regionalization. Benefits of a regional approach include taking measures to make the collections more accessible through a digital format and employing innovative ways, such as the use of veterans, to ensure the preservation of these collections.

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13 Business challenges for the twenty-first century

The next 40 years of private heritage management

Christopher D. Dore

Introduction

Over the last 40 years, there has been a fundamental shift in American archaeology. Within the United States, there has been a near complete transformation of archaeology from a public archaeology done within academia, museums, and government to an archaeology carried out by private, for-profit firms and known as cultural resource management (CRM) (Roberts et al. 2004). A similar change has, or is, happening outside of the United States as well (Messenger and Smith 2010; Wheaton 2008). Today, defined by dollars spent, only an immaterial amount of archaeological work in the United States is conducted outside of the private sector. For example, current forecasts predict that 2018 will mark the first year that revenue for private-sector archaeological compliance will top $1 billion (Figure 13.1). In contrast, traditional grant funding for archaeological research in the United States is in the range of $25 million (Altschul and Patterson 2010: 295), approximately 2.5 percent of the private-sector amount. It can be debated whether the shift from a public to a private archaeology has been a good one, and points can be made by both sides. Regardless, though, it is difficult to deny that this change has occurred. Heritage has been privatized in the United States and archaeologists along with other heritage professionals need to adapt to this change and figure out how to best accomplish their scientific, disciplinary, and professional objectives within a private, and largely for-profit, system.

While the last 40 years have seen radical structural change in American archaeology, archaeology's disciplinary values have remained relatively static. Science, research, preservation, and the quest to learn about the past still remain core values (Lipe 2009). Most archaeologists employed by private companies are motivated by these values. However, as the cultural resource industry has evolved and matured, the necessity to focus on business issues has become paramount. The reason? If companies don't succeed as viable businesses in our for-profit system, they, and the archaeologists they employ, will be unable to achieve their heritage objectives. We need to realign heritage success and business success to ensure that both are achieved.

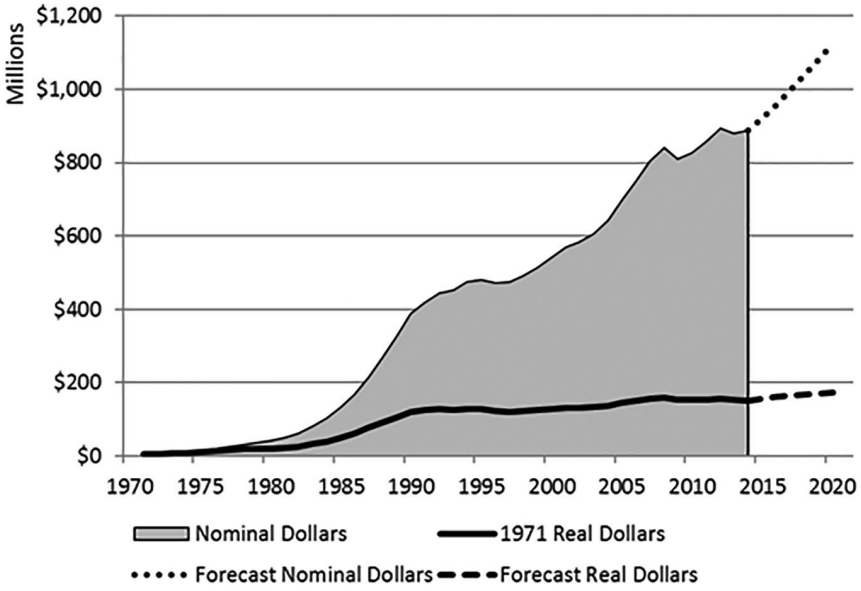

Figure 13.1 Real and nominal growth of the U.S. Heritage Compliance Sector: 1971–2014, with forecasts through 2020

Source: Heritage Business International

The challenge of achieving both professional *and* business objectives has become more difficult in recent decades. This has been due to internal, firm and industry, factors as well as changing external economic conditions. At this fiftieth anniversary of the National Historic Preservation Act of 1966 (NHPA), it is an appropriate time to reevaluate the basic framework of heritage compliance consulting and the business models used. This chapter examines the business history of the heritage compliance industry, created in response to the NHPA, and discusses the two largest business challenges that currently exist for heritage compliance consulting firms in the United States: differentiation and capitalization.

The industry today

Most of the oldest CRM firms in the United States today had their beginnings in the late 1970s or early 1980s as the private sector began to develop in response to the NHPA. During the first decade following the passage of this act, the majority of contracted archaeological work was done by museums and academic institutions (McManamon 2014; Roberts et al. 2004; Wheaton 2008). Overcome by the increasing volume of work and

the constraints of an academic structure on, essentially, private practice, entrepreneurs begin to break free and establish private companies exclusively focused on the growing private market for archaeological services. At the time, there were few economic barriers to entry. A typewriter, pickup truck, and a few digging tools were sufficient to be a major competitor for contracts that predominantly came directly from the federal government.

Through a combination of skill and luck, some firms were able to rise to the top. Today, top CRM-only firms (excluding the multidisciplinary environmental and engineering firms that may provide CRM services) have annual revenue of around $15–20 million and market share of about 1.5–2.0 percent.[1] Despite the attempts of many of the large firms over the last decades to break through the "dirt ceiling" of $20 million, none have successfully sustained this level of annual revenue over multiple years. This, in itself, is very interesting and pertains to the organizational structure and governance of firms as well as professional/corporate culture. Generally, heritage compliance firms have one chief executive officer or president who is the decision maker – authority isn't delegated too far into the organization. Firms can operate at the $10–15 million level with this structure. Beyond this level, though, one person can't adequately make all the decisions that are required. Reorganization and delegation of authority is required to smoothly operate at a level approximately greater than $15 million. While reorganization is possible, most firms faced with this challenge have chosen to scale back rather than to reorganize and, necessarily, become more bureaucratic, procedural, and less personal. Professional culture has trumped business priorities.

While the market share of individual firms is low, the overall size of the market has grown significantly over the years, at least when measured in nominal dollars (Figure 13.1). Overall market growth has provided many individual firms with the illusion of business growth and success, even though these same firms may actually have only maintained, or even lost, market share and underperformed the market. The reason is that most firms measure their growth in inflation-uncorrected nominal revenue and this masks their true performance. When measured in real dollars, though, a very different picture emerges (Figures 13.1 and 13.2). Real dollars account for inflation and indicate true growth through time.

Historically, from 1972–2014, the mean annual real growth of the industry has been 8.9 percent (Figure 13.2). For the initial two decades of data, 1972–1990, the mean annual growth was an impressive 19.0 percent. This includes one contraction during 1979 and 1980 when annual growth, while still positive, was below 5 percent. This dip is attributable to an unexpected rise in oil prices, an "oil-price shock" in 1979 (Miller et al. 1980; Verleger 1979). High levels of growth returned to the industry in 1981 and continued until 1990. July 1990 marked the end of what, up to that time, was the longest peacetime economic expansion in the United States and a two-year recession began (Walsh 1993). The heritage consulting industry contracted and

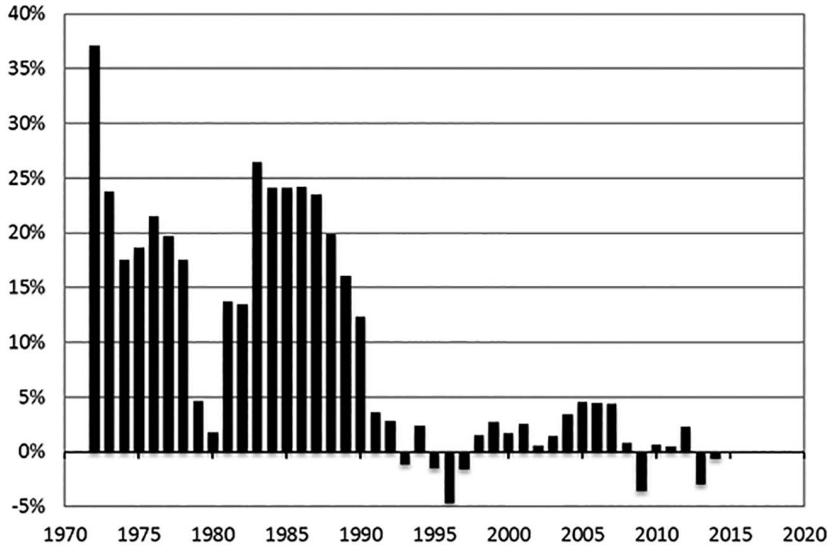

Figure 13.2 Real growth of the U.S. Heritage Compliance Sector: 1971–2014
Source: Heritage Business International

in 1993, for the first time, had negative growth. What is surprising, and yet unknown, is why the heritage industry never recovered from this recession. This is especially interesting given that the recent, much deeper recession of 2007–09 (Altschul 2010) only resulted in a single year of negative growth (-3.6 percent in 2009). From 1991–2014, mean annual real industry growth was 1.0 percent. While the nominal dollars spent on heritage compliance continue to rise, and the annual revenue of firms increases, the industry has had essentially flat growth for nearly the last 25 years. This lack of real growth, lack of value growth, has major implications for the wave of ownership transition that currently is taking place in the industry.

The large (> $1.5 million annual revenue; American Cultural Resources Association [ACRA] 2015) and mid-sized ($0.4–1.5 million annual revenue; ACRA 2015) firms in the industry are sizable businesses with many functional units and multiple office locations. Decades of market development and competition have resulted in a marketplace that is mature and sophisticated. Firms must maintain a high level of expertise in a wide variety of skills, both scientific and support, to be competitive. Most firms, including the largest firms, operate at a size below which is required to achieve optimal operational efficiency and excellence across the large number of functional areas needed. As a result of growth and maturation, barriers to entry in the industry have risen dramatically. Today, it is virtually impossible for a new generation of archaeological entrepreneurs to successfully start a

compliance firm without significant capitalization. The days of the pickup truck and typewriter are gone forever.

The goal of starting a company in the 1970s and 1980s for most founders was to create a job that allowed them to do archaeological research, to fulfill their professional aspirations. Their concern really wasn't starting a company simply for the sake of creating wealth. Thus, from a financial perspective, the focus was on profit and not value. Typically, if a firm produced a profit at the end of the year and managed to do a few meaningful projects, the firm was viewed as successful (e.g. Breternitz 2004: 54; Green 2004). Owners often left enough money in the firm to cover upcoming operating expenses and took the rest as "salary". This financial model is still typical of many of the cultural compliance firms in the heritage industry.

Unfortunately, though, many owners of cultural resource firms don't understand that simply being profitable isn't sufficient to increase firm financial value (as measured by Net Present Value under the Capital Asset Pricing Model; see a text on corporate finance such as Ross et al. 2005): profitability must reach a particular point well above profit "break even" to increase the financial value of the firm. This point is different for every firm and depends upon risk, the firm's capital structure, and the cost of capital. These are real costs to a firm's shareholders, but are not completely accounted for when calculating profit. To achieve a growth in value, profits needs to exceed these additional costs. Simply being profitable isn't sufficient and will reduce the value of the firm unless the profit is above the value threshold.

Today, many of the original founders selling their businesses to retire are shocked to find that their business have very little value despite decades of profitability. New owners, too, may have very different needs than the scientific priorities of the founders. When little investment was required to start a firm in the 1970s, a return on that investment was less important than doing great research, being profitable, and paying salaries. While industry growth has been flat for the last several decades, the 1970s and 1980s were high growth years and many established firms are worth more now, in real dollars, than they were when they were founded. New owners have to significantly invest to acquire CRM firms today. Achieving a return on this investment may have a much higher importance to them than it did for the generation of retiring owners.

While the performance of individual firms has varied, the annual 1.0 percent industry growth as a whole since 1991 does not present a very attractive investment opportunity. Outsiders, meaning those outside of the heritage disciplines who may not share the same professional values as those within, would not likely be interested in purchasing even a successful firm in a flat market. Those who do share in the professional values may be willing to give up return on their investment to advance their professional goals and perpetuate preservation, research, education, etc. Thus, many owners of heritage consulting firms favor selling to their employees to maintain a focus on quality archaeological research. However, generally low archaeological

salaries may preclude employee ownership given the equity value of firms. Using mechanisms like the Employee Stock Ownership Program (ESOP) circumvent this and have great benefit for the seller, but place burdens on the new employee owners who must aggressively drive firm value higher. A few cultural resource ESOPs have failed and reverted to non-ESOP ownership because of this conflict between business requirements and heritage values.

Business challenges for CRM firms

Cultural resource firms, and the business model they use, evolved slowly over the last 40 years of industry growth. The marketplace today, though, is very different from that of the initial decades. Today the industry can be characterized as a large with fragmented market share, service commoditization, saturated with no unoccupied geographic or service niches, high barriers to entry, low value growth, and a simultaneous transition of ownership as the founding entrepreneurs retire. For near-future success, as well as for longer-term sustainability for the next 40 years, firms must respond to two major business challenges: differentiation and capitalization. These challenges, at this particular time in the industry, require that firms rethink business assumptions.

Differentiation

Prior to about 2000, cultural resource compliance services were viewed by the marketplace as value-added professional services. Education, experience, expertise, and quality had value for which many clients were willing to pay a premium. Cultural resource professionals were viewed much in the same way as are other highly trained service professionals: lawyers, engineers, physicians, etc. However, over the last decade there has been a change in client perspective. The services that are provided today have become commodity services.

Virtually every firm in the compliance industry can do technical work at a high enough level of quality to successfully get their clients through the compliance process. With the work of firms being equal, the individual firm brand no longer has market relevance. What was the brand of the last box of paper clips you purchased? Today, from most clients' perspective, it really doesn't matter which firm they hire to do their compliance work. Yes, industry insiders know which firms can do higher quality work or "better" research, but this usually has no market value. Until government regulators raise their acceptance standards for compliance reports to a level where some firms can't achieve them, there will be no price premium to be gained by firms doing higher quality work.

With commodities, there is no differentiation and price converges upon cost. Many heritage compliance firms have seen profit margins drop over the last decade. Margins have reached levels below the point they can add

value to firms and, in some cases, even to the point where staying profitable at all is a challenge. Without the adoption of a commodity business model, the lack of differentiation becomes a "race to the bottom" (Wallman 2010).

One can make money selling commodities. Our world is full of commodity products that are purchased daily and the firms that produce these are healthy and creating wealth for their investors. A commodity business model requires two things. First, because the margin between cost and price is so small, firms must have large market share and sell high quantities. Second, firms must have hyper-efficient operations. Since price changes uniformly for all companies, firms gain advantage over their competitors by reducing their costs. Every slight decrease in cost per item is an increase in profit. When you are iterating over millions or billions of units sold, tiny increases in margin become material.

Most heritage compliance firms, though, can't achieve sufficient market share to make a commodity business model viable. This is primarily due to their lack of the capitalization that would be needed to consolidate share and to invest in more efficient operations. Even if they were sufficiently well capitalized to move to a commodities business model, most firms would prefer to maintain the value-added professional services business model they already have. This is because a value-added model correlates well with professional heritage values and the desire to increase the quality of research, preservation, education, etc. The compliance industry today is selling a commodity service using a value-added model and a conflict exists between business needs and heritage values. The challenge is realigning these two things.

Fortunately, it is possible for firms to redefine commodity products and services so they are not identical. There are many examples of commodities that have been "branded". My favorite is Eggland's Best, an egg you may find in your grocery store. Eggland's Best has taken a very basic product category and figured out how to create a nutritionally superior egg that has the best quality, taste and freshness. By so doing, they are no longer competing with "regular" eggs and can sell their eggs at a higher price because they are not the same. They have literally branded the egg by putting their logo on every egg they sell. If you can take a commodity as basic as an egg, brand it, and charge a premium for it, you can certainly differentiate cultural compliance services!

Differentiation is hard for cultural resource companies, though, because the easiest way to differentiate, on technical expertise, has no real market value. As noted earlier, essentially all firms have the skills to get their clients through the compliance process adequately. So, if differentiation on technical and scientific skills isn't an option, how will firms be, or appear to be, different to clients? How will they offer a service their competitors can't? How will this service bring so much value to a client that they are willing to pay a premium for it?

The methods of differentiating aren't difficult to understand and can be found in many basic books on marketing (e.g. Trout 2000). The first step

is to find out what your best clients value the most. Next you must look at your competition and identify how your firm is different, or can be different, from the competition in ways they can't duplicate – and that your clients care about. Then you must convert these differences back into client benefit statements (Dore 2012). Most importantly, you must deliver on the benefits. Successful execution is where most cultural firms fail, even though they may completely understand the concept. When successful, though, heritage firms achieve a point where clients want a particular firm working for them regardless of how much it costs. When this happens, the firm has successfully broken out of the commodity market. They are no longer offering a service that, in the eyes of their clients, is the same as their competitors. When services are not the same, they don't need to be priced the same, and heritage values once again can align with business needs.

Capitalization

Working capital is essential for growth, competitiveness, scientific capabilities, and achieving scales of efficiency. Yet, capitalization has never really been a major topic of interest or concern in the heritage industry. Cultural compliance companies have relied on their retained earnings for capital. As mentioned, after dividends are paid to shareholders, many firms only have sufficient funds left for sustaining operations and not for financing growth. When owners remove profits, they can leave their firms in a position of competitive disadvantage. The lack of sufficient working capital is one of the main reasons that the cultural industry is so fragmented. Expansion, organically or through acquisition, is expensive and requires capital.

Why is growth important? It is important for business reasons because having large market share provides "pricing power" – the ability to influence market pricing. Additionally, as mentioned, the size of most firms today is too small to achieve high levels of excellence across all functional areas and operate at optimal levels of efficiency. It is important for scientific reasons because having large market share allows firms to set and influence scientific standards, build advanced capabilities, add expert scientists, and do more archaeology – essentially, have a larger heritage impact.

Profits are necessary to invest back in the business to increase the value of the company. When profits are put in the bank, they currently earn 1 or 2 percent interest. When profits are used to acquire a successful competitor, open a new office, start a new service offering, etc., they return a much, much higher rate of return and increase firm value. As founders and owners of cultural compliance companies are replaced by those who may not necessarily care about archaeological research, or who may care but aren't willing to subsidize the research from their return on investment, firms will need to be restructured to ensure that they return value to their investors.

With such a high level of fragmentation in the heritage compliance industry, an economically inelastic service (e.g., required by law), firms operating

at a suboptimal size for efficiency, loss of market share to engineering and multidisciplinary environmental companies, and transitions in ownership, there are many reasons that heritage firms should capitalize growth at this point in the history of the private-sector compliance industry. To enable capitalization and take advantage of market opportunities, though, firms must figure out how to generate profits at levels that increase firm value, compensate investors for business risk, and build wealth for shareholders. This is currently at odds, however, with the dominant business model used in the cultural industry. It is also at odds with the corporate culture that has evolved in most firms over the last 40 years. It is a challenge, though, that must be overcome.

Conclusion

It is time to rethink assumptions about private-sector CRM and the business model that has evolved over the last 40 years of practice. While once acceptable, the maturation of the market, commoditization of services, and the first big wave of ownership succession are requiring a different way of doing business. To achieve success in the twenty-first century, firms must return value to shareholders and differentiate themselves from competitors (or embrace a commodities business model). Companies will approach these two challenges differently and find their own solutions to them. Not acknowledging that external economic conditions have changed around the industry and individual firms, though, and continuing business as usual adds significant risk to the sustainability of heritage organizations.

Although most professionals in the heritage industry are still motivated by science, preservation, education, and the quest to learn about the past, it must be realized that archaeology in the United States has almost completely been privatized over the last 40 years. While heritage professionals may be motivated by their professional values, heritage disciplines including archaeology will be hindered if private, for-profit businesses are unable to operate as successful ventures. There isn't a tradeoff between good business and good science. The stronger heritage businesses are, the better archaeology will become.

Note

1 Unfortunately, there are few official government statistics in North America for the CRM sector of the heritage industry – despite attempts by the American Cultural Resources Association to lobby for a North American Industry Classification System (NAICS) code. Figures used in this article come directly, or indirectly through a lot of creative analyses, from a variety of public and private sources: American Cultural Resources Association, National Trust for Historic Preservation, HeritageBusinessJournal.com, Heritagebusiness.org, *Environmental Business Journal*, IBISWorld, U.S. Securities and Exchange Commission, U.S. Department of Labor, Altschul and Patterson 2010; Herr and Dore 2009. Regardless of source,

researcher, or technique, the quantitative conclusions about the size and structure of the CRM sector have been nearly identical over the years and this provides at least some measure of confidence in their accuracy.

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14 Heritage conservation

Cultural Resource Management results for public planning, preservation, research, and outreach

Linda Mayro and William Doelle

Introduction

Momentous changes to the very fabric and spirit of the United States followed the conclusion of World War II. This was the dawning of a new and modern America that sought to redefine and renew itself entirely – its cities, communities, countryside, and commerce. A new generation of Americans would be born who would inexorably continue to fuel these changes. In post-war America, two important federal programs, one established by the Housing Acts of 1949 and 1954 and intended to spark reinvestment in urban centers and the other the National Interstate and Defense Highways Act of 1956, would result in the destruction of the hearts of America's most historic cities. A decade later, concern about the destruction of historic buildings and districts led to the largest modern expansion of the American historic preservation movement and the passage of the National Historic Preservation Act in 1966.

In the 1950s, America's roadways remained largely a "farm to market" system that had developed from its roots in the nation's agrarian beginnings, but no longer served the growing population which was increasingly purchasing cars, working in urban commercial centers, and beginning to live in newly established suburban subdivisions. Passage of the 1956 National Interstate and Defense Highways Act established the interstate highway system, which rapidly modernized and expanded America's transportation network, but impacted communities by dividing neighborhoods and bypassing historic towns and local centers of commerce. Families moved from rural areas and city centers to the suburbs, and the resultant disinvestment in the urban core of many American cities continued to fuel the removal of so-called blighted areas under the 1949 and 1954 housing laws. As we know today, instead of facilitating rehabilitation and reinvestment, these federal programs simply removed entire historic neighborhoods and city centers with bulldozers, dislocating people, and essentially erasing the physical expression of the city's heritage and historic identity.

This loss of the physical expression of American heritage is tragic and immeasurable, but it generated significant opposition to the nationwide destruction of historic properties by federal government programs. It is most

remarkable that the nation's First Lady, Lady Bird Johnson (1966), in her support for the work of the Special Committee on Historic Preservation of the U.S. Conference of Mayors, essentially forced Congress and the federal government to reflect on the consequences of these destructive policies and programs. This Committee report, *With Heritage So Rich*, published in 1966, made compelling arguments and recommendations for the preservation of America's cultural heritage, and in doing so, laid the foundation for the passage of the National Historic Preservation Act in 1966 (NHPA), establishing the National Register of Historic Places (NRHP), State Historic Preservation Offices (SHPOs), the Advisory Council on Historic Preservation (ACHP), and the provision of federal appropriations to support these efforts.

The new federal policy established by the NHPA and eventually implemented by agencies whose "undertakings" might affect "significant historic properties" embraced a wide diversity of heritage resources that included both the built environment and archaeological resources, or as defined in the National Historic Preservation Act – "any prehistoric or historic district, site, building, structure, or object included on, or eligible for inclusion in the NRHP." The inventory, management, evaluation, and treatment of these cultural and historic resources defined a new and growing profession. This became defined as cultural resource management (CRM) by the National Park Service and others as a consequence of two important conferences held in 1974, the Denver Cultural Resource Management conference (Lipe and Lindsay 1974) and the Airlie House seminars (McGimsey and Davis 1977), which comprehensively addressed law in archaeology, CRM, guidelines for the preparation of research designs and evaluation of archaeological reports, explaining archaeological work to the public, archaeology and Native Americans, and professional certification and accreditation (see also Chapter 1, this volume).

Two important and thoughtful leaders in the new field of CRM who participated in these conferences would profoundly influence the profession in establishing high standards for the conduct of CRM and in developing a conservation ethic in archaeology. Gwinn Vivian, then Curator of Public Programs at the Arizona State Museum, emphasized how important it is to make archaeology relevant to the public and create good public policy and planted the seed with the current authors that the public could "take ownership" of the past by literally "owning sites" for conservation. In a similar vein, Bill Lipe, then at the Museum of Northern Arizona, stressed that it is important to remember archaeological sites are non-renewable resources and that "archaeologists become involved in all aspects of archaeological resource management, not just in the exploitive aspect (Lipe 1974: 213)."

"We are now beginning to realize that all sites are rather immediately threatened . . ." (Bill Lipe)

When Bill Lipe made this prophetic statement in his foundational article, *A Conservation Model for American Archaeology* (Lipe 1974: 214), CRM was nascent as a profession, and most CRM and compliance-related

archaeological investigations were undertaken by universities under an academic umbrella. While Lipe cautioned that all archaeological excavation, whether CRM or otherwise, degrades the resource base and archaeological record, little did anyone fully grasp how financially lucrative CRM would become as a private sector growth industry. In a recent posting to its website on industry metrics, the American Cultural Resources Association (ACRA), the trade association for private businesses engaged in CRM, notes that in 2011 "more than 180,000 federal actions complied with the National Historic Preservation Act that affected nearly 110,000 historic buildings, districts, objects, and sites." ACRA further notes "there are about 1,300 CRM private for-profit firms nationwide, these firms employ some 10,000 CRM professionals, and these firms generated over $1.0 billion in revenue in 2012" (www.acra-crm.org/news/159051/CRM-Industry-Metrics.htm).

While today's legal framework for cultural resources management has undoubtedly created enormous opportunities for excellent scientific research at sites that might otherwise be destroyed, there is little incentive for site preservation. To quote Lipe again, "our basic problem is that we exploit a nonrenewable resource" (1974: 213). We would add there is little to no financial incentive in the CRM business model to advocate for the preservation in-place of archaeological sites. While the National Environmental Policy Act (NEPA) and the NHPA both espouse a strategy of resource preservation through a sequential consideration, first of avoidance of impacts or preservation, second minimization of impacts, and only lastly, mitigation when impacts cannot be avoided, the term "preservation" is a slippery concept in CRM. Too often, preservation only means the preservation of information through data recovery for archaeological resources or documentation for historic structures. This raises the question of how best to balance the needs of the client, the preservation of the historic property, and the preservation of the CRM company's bottom line.

Given the non-renewable nature of the archaeological record and the substantial sums of public money being expended to manage that record, it is essential that our approach to archaeological resource management be both good archaeology and good public policy. In *Archaeology & Cultural Resource Management: Visions for the Future*, Sebastian and Lipe (2009: 13) note that some fundamental questions are being asked by professionals and policy makers about publicly funded archaeology:

1 Is the public getting its money's worth from CRM archaeology?
2 Are the dollars spent on managing archaeological sites . . . being spent where they will have the greatest return?
3 Are the procedures used to evaluate the significance of archaeological sites really successful in distinguishing the "important" sites from those that are unimportant?
4 Are the dollars being spent on the mitigation of effects to archaeological sites yielding a proportionate increase in our understanding of life in the past and serving to inform, inspire, and engage the public?

These issues all ask a central question: What is the public benefit of CRM? In returning to the NHPA, which set forth the basis for its enactment in its Preamble: "The historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense of orientation to the American people." This statement clearly emphasizes that the American public benefits from the preservation of cultural and historic sites because they provide a focus to our nation and its people as important and living reminders of our collective history.

Cultural resources are part of our cultural environment. As Tom King (1998: 9) noted, and others have echoed, "Cultural resources [are] those parts of the physical environment – natural and built – that have value of some kind to some socio-cultural group." Cultural resources should, of course, be broadly defined and include archaeological sites, historic sites, structures, objects and buildings, and places of traditional cultural value – all of which can have scientific, educational, recreational, aesthetic, economic, and traditional and spiritual value. Understanding how people value these diverse cultural resources should be the key to seeking the best solutions for their management. Because they are fragile and nonrenewable, there is public interest in managing these resources for the future benefit of generations to come, but unfortunately, the economic value of the land and the financial rewards and imperatives of growth and development are often the only values considered in how to treat these resources. Although the flourishing growth of CRM in the last 50 years has resulted in some very significant research, archaeological sites and places of historical importance are often completely destroyed, leaving little chance for these places of our past to become living parts of our communities, to provide opportunities for future research, or to provide direct engagement with the past to the American public. Once these places are removed from the physical landscape, they can no longer be part of the cultural landscape.

Preservation archaeology

In recognizing that the archaeological record is non-renewable and that growth- and development-driven mitigation continue to diminish that record, we propose an alternative vision for the future of CRM that seeks to bring into better balance the principal objectives of the NHPA – site protection, research, and public outreach (Figure 14.1).

To be effective, any vision must be put into practice to determine how best to achieve the desired goals and objectives and to develop options for implementation. Southern Arizona offers a set of concrete examples of the varied contexts where preservation archaeology has guided planning and implementation on multiple scales. The authors draw on these case studies to illustrate ways in which the broad ethical and practical tenets of preservation archaeology can serve to balance multiple values and interests. The examples highlight that collaboration among private sector and government participants can lead to positive preservation outcomes, though persistence over extended time frames is often essential to ultimate success.

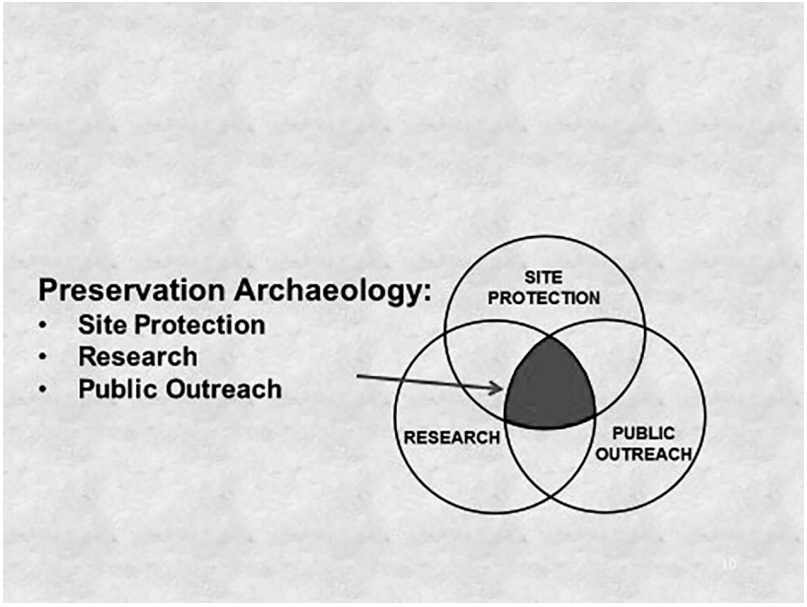

Figure 14.1 Key components of preservation archaeology

Site protection and conservation

In the aftermath of Tucson's own urban renewal in the 1960s, the zeal for modern growth and progress at any cost was soon met with public outrage and the realization of what had been lost. More than 1,000 people had been displaced from their homes, some 1,500 buildings torn down, and more than 80 acres of Tucson's collective and diverse history had been eradicated. Tucson's very foundations at its urban center had been bulldozed including its Spanish Colonial and Mexican-era Presidio and some of its oldest neighborhoods dating to the eighteenth and nineteenth centuries. A vital part of the living community and its physical and cultural environment had been erased.

These events set the stage for the development of a conservation ethic in local government, including both the City of Tucson and surrounding Pima County. Both local governments passed policies to protect the area's archaeological and historical resources in the 1970s, but that did not remove the painful memories of the 1960s or stop the "growth – no growth" conflicts in the community, which became a new battleground for the environmental movement. While the region has a long and rich cultural past, this region is also defined by an equally diverse and biologically rich natural environment.

In the late 1990s, Pima County was faced with rapid population growth. Suburban sprawl was destroying vast areas of natural area and wildlife

habitat at the edge of the Tucson metropolitan area. Although Pima County requires developers to mitigate impacts to cultural resources either through in-place preservation or through data recovery and documentation, significant aspects of the region's cultural heritage were being lost to development. At the height of this spike in development and the increasingly harsh debate over growth, the federal government listed the Cactus Ferruginous Pygmy-owl (*Glaucidium brasilianum cactorum*) as an endangered species and its natural Sonoran desert habitat as critical habitat, which essentially stopped all construction including roads, subdivisions, and even new schools. County leadership responded by setting a bond election in 1997 to conserve some of this important habitat. Pima County voters showed overwhelming support by approving bond measures for not only natural open space protection, but also cultural and historic site preservation. Both bond measures authorized the acquisition of properties from willing sellers for conservation purposes.

The 1997 bond election was indeed a landmark event and included the first-ever bond question in Pima County for cultural resource protections. Voters approved more than $6.4 million for the acquisition of five archaeological sites for preservation, the rehabilitation of five County-owned historic properties, and the establishment of the Juan Bautista de Anza National Historic Trail. This success at the ballot box set the stage for further conservation planning and public support for historic and cultural resource preservation and natural area protection in the years to come.

The Sonoran Desert Conservation Plan (2000) a plan to direct growth to areas suitable for growth while conserving and protecting those natural areas and culturally significant sites in perpetuity, was initiated by the Pima County Board of Supervisors following the successful 1997 bond election. This award-winning plan is recognized as one of the nation's most comprehensive conservation land-use planning efforts because of its breadth and scope and its ongoing implementation. Its success derives in large measure from community engagement in a dialogue about values. To build consensus for balancing growth and conservation planning, every possible stakeholder was invited to participate in the discussion including developers and real estate interests, rural ranchers, the business community, environmental groups, American Indian nations, cultural groups, recreational interests, and the greater public. Seeking to be inclusive of all the divergent interests, the stakeholders were asked what elements of our natural and cultural environment are most important for conservation. Five elements emerged that, broadly defined, include: critical habitat for endangered species; biological corridors and riparian areas; mountain parks; historical and cultural resource preservation; and, working ranch conservation. All five elements were critical in forming a viable conservation land management plan for Pima County. The growth debate was redirected to include science-based assessments of our natural and cultural environment. These assessments continue to inform decision-making on land use, where development can be best directed to cause the least environmental and cultural damage, and,

most importantly, what natural areas and cultural resources merit conservation in perpetuity.

Priority cultural resources planning

As noted by Lady Bird Johnson (1966) in her Foreword to *With Heritage So Rich*, "We must preserve, and we must preserve wisely." The historical and cultural preservation element of the Sonoran Desert Conservation Plan has a comprehensive and inclusive scope, developed in parallel to the biologically derived Conservation Lands System. It sought to define and understand the cultural landscape and how the region's history, traditions, and cultures have shaped the natural landscape and the living community. Some principles and goals that guided the research included:

- Preservation of historic and cultural resources as tangible links to a community's past allows the public to experience the sense of place that defines Pima County.
- Non-renewable cultural and historic resources should be saved as highly valued representations of our collective heritage.
- Historic preservation strengthens the community by recognizing the contributions of all cultures in shaping the growth, character, and traditions of the region.
- Traditional land uses by ranchers, rural communities, Native peoples, and others serve to preserve long-standing cultural traditions and to retain the land's intrinsic historic values.
- Conservation of rural and unspoiled landscapes preserves the natural and cultural environment and the ability to experience that environment as our ancestors did.

And so began the assessment and evaluation of the cultural environment and those places of such great importance to the history and culture of Pima County that their protection is warranted. Working with teams of experts in archaeology, history, architecture, and historic preservation, sensitivity maps were developed using existing data and predictive modeling, and Native American and other communities were consulted regarding places important to traditional living communities. Working in parallel to the biological expert teams who defined "priority conservation areas" for habitat and species, the cultural resource expert teams sought ways to define "priority cultural resources" for those sites and places that should be preserved for the benefit of future generations as a living part of the community.

The concept of priority cultural resources acknowledges there is a great number and diversity of cultural resources throughout the region representing more than 12,000 years of human history and hundreds of generations who left a rich legacy across the landscape. All of these are important for their scientific, cultural, educational, recreational, aesthetic, or traditional values, and

all should be managed appropriately. But some are exceptional and should be identified as Priority Cultural Resources (PCR). These resources are places of such extraordinary importance to the community that their loss would be detrimental to our history and culture. Furthermore, their preservation and protection significantly benefit the public as living parts of the community. Based on the work of the expert committees, a simple and operational definition was shaped that embodies this goal and the concepts of history and culture (Cushman 2002: 4), "Priority cultural resources are places of such extraordinary importance to the history and culture of the people of Pima County that their conservation is warranted in the public interest."

Following an exhaustive review of the inventory of cultural resources in Pima County, the expert committees decided to use the criteria established for listing historic properties important to American history, architecture, archaeology, engineering, and culture in the NRHP (Shrimpton 2002). In addition, supplemental criteria reflecting local and community interests were developed by the committee to further serve in the review of the character and quality of cultural resources known at the time. The supplemental criteria (Cushman 2002: 6–7) include:

1 *Integrity* – sufficient preserved cultural remains to convey its significance for understanding past peoples, places, and landscapes.
2 *Research value* – ability to contribute to one or more research themes that help us understand past peoples, places, and landscapes.
    a The relationship between past people and their environments
    b The development of technology
    c Patterns of subsistence and settlement
    d Communities and social institutions
    e Cultural identities
    f Local roles in larger systems
    g Traditions and beliefs
3 *Rarity* – a unique or limited occurrence, such that its destruction would be an irreplaceable loss to our understanding of peoples, places, and landscapes.
4 *Context* – part of a larger recognizable set of related sites, buildings, or structures that offers us a comprehensive view of the relationship between past peoples and places in a contiguous area on the landscape.
5 *Community recognition* – recognized by one or more segments of the community as significant to its heritage and identity.
6 *Educational* – the potential for public education for all ages through the implementation of appropriate educational and interpretive programs.
7 *Threat* – a cultural resource that meets any of the above criteria and is threatened with damage or destruction from natural (erosion, animal, or vegetation damage) or cultural (vandalism, development, or activities associated with current use) forces.

As a consequence of this intensive multiple year effort to identify, assess, and evaluate the entire known record of cultural resources in the region, the expert committees identified 229 properties and places for conservation and preservation. These Priority Cultural Resources run the gamut of time and place; included are 64 individual archaeological sites, 27 archaeological site complexes, and 138 historic sites. The archaeological sites represented range from places where people lived in the distant past, including some of the earliest agricultural sites in the Southwest, to later ceramic period Hohokam sites, ancestral sites important to the Tohono O'odham, and later Spanish, Mexican, and American period sites. Archaeological site complexes are contiguous areas of dense concentrations of archaeological sites where people lived repeatedly in the same locations over time. Historic sites consist of buildings, structures, and landscapes that have been used since Spanish Colonial times. Today, Priority Cultural Resources are highlighted in the Pima County Comprehensive Land Use Plan together with the biological Conservation Land System as places in our cultural and natural environment that should be conserved for the public benefit.

Bonding with the past

To implement these planning efforts, voters were again asked in 2004 to authorize bonds for natural area conservation and cultural resource protections, which they again overwhelmingly approved. As a consequence of the 1997 and 2004 bond elections, voters authorized some $192 million for natural area conservation, as well as $26 million for archaeological site acquisitions and historic preservation. Pima County today manages nearly 240,000 acres of natural area and working ranches that surround and contain the Tucson urban core (Figure 14.2). These heritage conservation areas preserve wildlife habitat and connectivity, improve watershed function, protect local water supplies, reduce flooding, enable Native peoples to experience and use the land in traditional ways, continue a rural economy of ranching and stewardship, and protect a cultural landscape that holds untold thousands of cultural and historic sites that have not yet been inventoried or recorded.

Harkening back to the idea planted by Dr. Gwinn Vivian long ago that the public could choose to own its heritage to protect it, Pima County voters made that choice by providing significant bond funding for the acquisition, protection, and preservation of many of the "last of the best" prehistoric and historic resources in the region. The range of historic preservation projects spans the County's cultural landscape with preserves in urban and rural settings at prehistoric and historic archaeological sites, historic buildings and structures, historic ranches and ranchlands, and traditional cultural places. Of the various projects, 10 prehistoric archaeological sites and 11 historic sites were acquired for preservation and protection located throughout eastern Pima County. These Priority Cultural Resources are living parts of our community life, and provide a sense of place and purpose, community

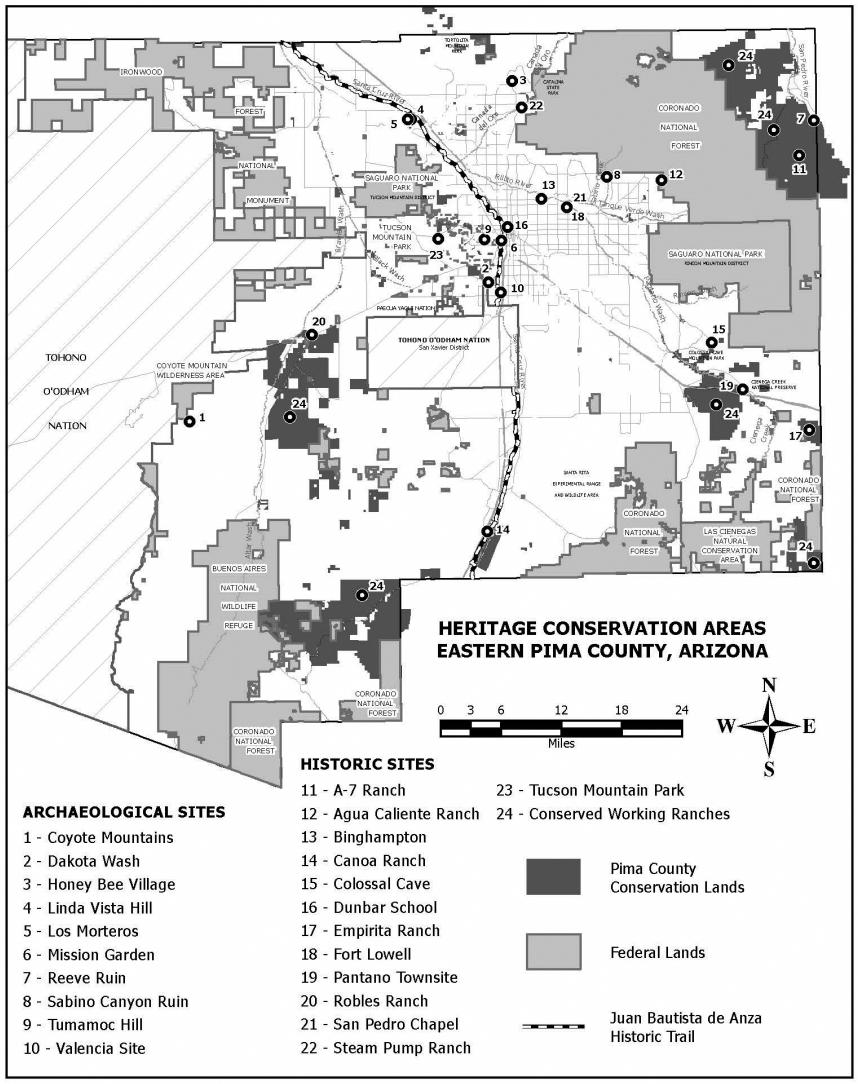

Figure 14.2 Eastern Pima County, Arizona, showing heritage conservation lands and sites

identify and stability, civic pride, cultural awareness and appreciation, and opportunities for heritage education – all public benefits. Two specific examples are summarized below:

Los Morteros, A Hohokam Village in the Northern Tucson Basin: One of the first Pima County Priority Archaeological Sites to be protected was the Hohokam ball court village called Los Morteros. A 32-acre parcel at the

core of this village had been donated to the University of Arizona Foundation, but the majority of the village was within a planned private development area. While testing and a data recovery program were conducted there in the mid-1980s (Lange and Deaver 1989; Wallace 1995), the sampling percentage was low given the size and density of the site. In addition, some of the tested areas were never developed and one undeveloped 10-acre parcel was both very high density and had seen only limited archaeological testing. Pima County was able to use voter-approved bond funds to consolidate all of these remaining components of this large village into a single parcel of 120 acres. The resulting archaeological preserve is now fenced, has a simple walking path, two interpretive signs, and a parking area. The preserve provides an opportunity to experience the scale and setting of a thousand-year-old village and below ground extensive archaeological deposits remain for the future.

Rio Nuevo and the City of Tucson's Early History: In 1999, City of Tucson voters approved a large, tax-increment financing program that was intended to promote downtown economic revitalization. A central element of the program was an archaeological, historical, and public interpretation program that was intended to provide substantial new information about the precontact history of the community as well as its seventeenth- to nineteenth-century Spanish and Mexican period history. Large-scale excavations carried out to address impacts of planned construction revealed pit houses that were associated with fragments of maize that were 4,100 years old. Nearby, ancient irrigation canals were dated to approximately 3,500 years ago. Thus, these studies revealed that Tucson has been an agrarian community for over four millennia.

Other excavations at the sites of the Spanish presidio and mission, which were located on opposite sides of the Santa Cruz River, firmly established that key portions of those two complexes were still preserved, despite intensive urban development. The northeast corner of the Spanish presidio was reconstructed, slightly offset from the still-preserved original foundation, and now serves as a downtown interpretive facility. On the west side of the river, the Mission Garden component of the former San Agustín mission has also been reconstructed. Both of these reconstructed facilities are now managed by non-profit organizations. While the overall goals of the original Rio Nuevo project have fallen short of expectations, the investments and the results of the archaeological and historical research have made major contributions to community history and are serving increasing numbers of visitors as the facilities and their non-profit organizations continue to be expanded.

Expanding priority planning

Archaeology Southwest (ASW), a private, not-for-profit organization that is based in Tucson and works in the United State Southwest and Mexican Northwest has a site protection program as part of its commitment to

preservation archaeology (see www.archaeologysouthwest.org). ASW has adopted and expanded upon the priority planning process developed first by Pima County. The ASW process considers a subset of all archaeological sites known for a region. The sites are identified specifically for a given planning region and they tend to be larger sites such as villages or sites with public architecture. Sites with broader public and cultural value such as petroglyphs or pictographs are also included. These "focal sites" are compiled in a geodatabase and are reviewed in a day-long meeting of multiple experts and interested individuals. Follow-on meetings are held with experts unable to participate in the primary group gathering. The knowledge and judgments of these experts help to define larger polygons that are potential "priority areas" and generally represent more than just a single archaeological site. Follow-up research, based on recommendations from the expert and interested parties meetings provides additional known-site information and assesses site condition and location through either an on-site visit or inspection of aerial images.

The resulting priority areas represent a consensus of experts and have great value for subsequent planning. As a relatively small non-profit organization, ASW employs this information for making decisions about expending its finite resources when seeking to protect sites on private land through fee ownership or holding conservation easements. Because these priority areas are not specific site locations, they can be made public and the information can be used for assessing large infrastructure projects at early planning stages. ASW's site level protection efforts focus on private property, but priority planning can also lead to advocacy for larger scale protection efforts by governments – for example, regional parks or preserves at city or county levels, or national monuments at the federal level. Overview articles on priority area planning provide more information (Doelle et al. 2016; Laurenzi et al. 2013).

San Pedro research and preservation

Since 1990, Archaeology Southwest has conducted research in the San Pedro Valley, the river system immediately to the east of Tucson. In the first five years, volunteers surveyed accessible lands adjacent to the river floodplain over the course of some 75 miles, recording nearly 450 archaeological sites in the process. In the late 1990s, private grant funding supported two seasons of mapping and small-scale testing of trash deposits at 29 late precontact village sites within the survey area. The results highlighted a process of migrants from the Kayenta area of northeastern Arizona moving into the southern portion of the study area and the subsequent responses of the existing local population to these migrants (Clark and Lyons 2011).

The impacts of migration in the San Pedro Valley showed up quite clearly in the contrasts between the northern and southern portions of our study area. First, in the north, existing local groups responded by aggregating into

a few large settlements and they also renewed the production of local red-on-brown ceramics that were very distinct from the ceramics of the migrant groups. The migrants, too, emphasized new versions of their traditional pottery, and there was almost no ceramic exchange between the two groups. Within a relatively short time, the Kayenta migrants had initiated a new and intensive exchange of obsidian with all populations and they began making the impressive polychrome pottery known as Salado polychrome. Within a few short generations, however, the initial opposition seems to have been suppressed and there emerged a new ideology of inclusion that is exhibited archaeologically as the Salado phenomenon. Polychrome pottery, at least initially produced primarily in Kayenta enclaves, and obsidian from upper Gila and northern Arizona sources were key traces of this new ideology. The iconography on the ceramics reflected both widespread Mesoamerican and Puebloan motifs.

Over the course of this research in the San Pedro Valley, multiple approaches to public outreach were implemented. Special attention was given to the rural communities where the fieldwork took place. Local talks have been presented on multiple occasions, and for six years ASW was able to support a half-time position for an archaeologist who lived in the central portion of the study area. ASW continued its relationships with local community members in collaborative responses to planned infrastructure projects – a freeway bypass and a major power line – that threatened the natural and cultural resources of this lightly populated valley. At present, ASW has five properties either owned or under easement in the San Pedro Valley as part of its site protection program.

Preservation archaeology in a for-profit context: the Julian Wash archaeological site

In the mid-1990s, the Arizona Department of Transportation (ADOT) was planning a complete rebuild of the I-10/I-19 freeway interchange on Tucson's south side. The interchange was centered on the Julian Wash site, a large Hohokam village that had received no archaeological attention when the freeway was constructed in the 1960s. Desert Archaeology, Inc., a private, for-profit firm based in Tucson and founded in 1982, completed extensive testing of the construction area. The 4.6 miles of archaeological trenches documented 94 pit houses, a sample that led to a prediction that almost 300 pit houses (plus over 350 nonresidential features) were present in the tested area (Swartz 1999).

ADOT's intent was to proceed with data recovery within the entire right-of-way defined by the very wide-radius curve of the on- and off-ramps planned for the new I-10/I-19 Interchange. Desert Archaeology proposed preservation of areas that were not in the direct impact zones of the new roadways. The cost savings of preservation were a compelling aspect of the discussion. Ultimately, excavations were focused on 90 pit houses that were

located in areas planned for direct construction activity, plus a 50-foot buffer zone to provide greater flexibility for the maneuvering of heavy equipment during road construction (Wallace 2011).

The final preservation steps at Julian Wash were even larger in scale. Desert Archaeology staff worked with the City of Tucson and ADOT and prepared a Transportation Enhancement grant that ultimately brought in over one million dollars and allowed the City to purchase an additional 4.5 acres at the core of the Julian Wash site. The grant also funded development of an interpretive trail and multimodal path that connects to an earlier interpretive trail implemented by the U.S. Army Corps of Engineers along the channelized Julian Wash. This larger preserve incorporates the land that was beneath the original I-19 alignment. A small area excavated by Desert Archaeology prior to construction of a drainage channel confirmed that archaeological features are preserved beneath that alignment. As a result, today nearly 17 acres of this important archaeological site are preserved for the future.

From a preservation archaeology perspective, Desert Archaeology had to balance multiple responsibilities: to its client ADOT, to Desert Archaeology's business interests, to the archaeological resource, and to interested community members – especially nearby Yaqui and Tohono O'odham communities. A preservation strategy created some additional logistical burdens for construction workers and heavy equipment operators to avoid small archaeological preserve areas, but it literally saved millions of dollars in data recovery costs. Desert Archaeology also had ethical responsibilities to consider the long-term values of preservation. The partnership with ADOT in the construction area was further magnified by ADOT's participation in the Transportation Enhancement grant, which qualified the project for a higher level of support. The grant ultimately resulted in the establishment of a public park with an archaeological interpretation trail that keeps the largest portion of the preserve from being just a barren piece of land adjacent to the freeway (Doelle 2012).

Public outreach

A preservation archaeology perspective requires an ongoing consideration of ways to share the outcome of archaeological research with the broadest possible audience. Sometimes this can be opportunistic. As this paper is being finalized, Pima County is sponsoring public visits to an archaeological site excavated by county contractor, SWCA Environmental Consultants, in advance of road construction. The excavations revealed a unique situation where a 3,000-year old agricultural field preserved footprints of barefoot men, women, and children, and even the family dog(s). This tangible human connection to a distant past is eliciting a remarkable response among local community members. Open-houses on weekend days are bringing out 500 to 700 daily visitors who are fascinated to have a chance to experience such a direct relationship with the past.

Being prepared to respond to special opportunities goes with the territory. Investing in creative ways to share archaeological information on a regular basis in interesting ways is an even more important responsibility. ASW began publishing a quarterly, public-oriented "newsletter" in 1986, and it has evolved into *Archaeology Southwest Magazine*, which the organization considers to be its flagship publication. The magazine topics that are most appreciated are the thematic issues that focus on the archaeology of a particular area or topic. Each issue features a guest editor who brings in the variety of currently active researchers to write short articles with strong illustrations. The content editor for the magazine works diligently to take the words of professional archaeologists and turn them into readily approachable prose that speaks to both the general and the professional audience. Relationships with skilled aerial photographers provide access to very high quality images that help to connect readers to the landscape where archaeological sites are located. Interpretive maps and additional readings provide more opportunities to connect with places of the past.

ASW has also pioneered Archaeology Cafés in both Tucson and Phoenix. They are based on the "science café" concept that developed in Europe and spread rapidly to the United States (www.sciencecafes.org/). The key is to find passionate archaeologists who are willing to stand in front of an audience in an informal café setting and share their work in straightforward language. Speaking without the crutch of power point is essential, though a few graphical handouts are allowed. The audience can sit back and enjoy food, beverage, and intellectual stimulation all at once. After a half hour from the speaker, the event turns into a conversation between audience and speaker. Because only 50 to 100 persons can attend such an event, they are recorded by a videographer and posted to the Archaeology Southwest website within a week or so of the event.

Conclusions – preservation archaeology is good public policy and good archaeology

Social and economic conditions today are different and afford new challenges to actively fulfilling the objectives of preservation, research, and public involvement, but changed conditions do not make these examples or the general tenets of preservation archaeology obsolete. Every one of the examples highlighted was based on strong commitments to collaboration and seeking balance in the conduct of CRM. There was extensive public outreach and consideration of community values in every case. The opportunities for future success will very likely require a different mix of people and processes, but the core principles are still relevant.

In closing, we underscore the principle that preservation archaeology is archaeology for the future. When we practice preservation archaeology, we optimize what remains for future exploration and discovery. To succeed, those of us committed to the practice and expansion of preservation

archaeology must engage in research and heritage conservation that in some way resonates with broad audiences. We must make that exciting information widely available, and we must commit to the thoughtful and very gradual consumption of our core resource, the archaeological record. In many cases, we should seek to save archaeological sites for the future and to retain them as living parts of communities. For CRM to continue to grow and mature, we must remember its philosophical basis and core ethic – that historic properties and cultural places have value as expressions of a community's cultural heritage, living traditions, and sense of place, and therefore deserve protection.

> We have learned much, there still remains much to learn. We are not going in circles, we are going upwards. The path is spiral; we have already climbed many steps . . .
>
> (Hermann Hesse, 1922)

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Part IV

Building on the past and present

Future challenges and opportunities

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15 If a genie offered me three wishes . . .

Lynne Sebastian

If a genie offered me three wishes that I could use to improve the practice of cultural resource management (CRM) in the future, what would I do? Well, first off I'd probably run away, because we all know that the genie/wish thing usually turns out badly. Putting aside the problems associated with the metaphor for the time being, however, this kind of reflection on paths to the future is endemic among historic preservation professionals lately because 2016 marked the fiftieth anniversary of the passage of the National Historic Preservation Act (NHPA). We are awash in discussions and symposia and essays and whole books asking: how can we built a better preservation program for the next 50 years?

CRM archaeology and the other anniversary

2016 also marked the forty-fifth anniversary of a less widely known event that profoundly affected CRM and especially CRM archaeology in the United States. Despite its importance, this anniversary has triggered very little shared introspection or visioning about the future. The passage of the NHPA in 1966 had virtually no impact on the practice of archaeology or the preservation of the archaeological record at the time. As originally passed, Section 106 of the law was specific to effects on historic properties *listed on* the National Register of Historic Places (NRHP). Because the kinds of archaeological sites likely to be accepted for listing were not the kinds of sites likely to be bulldozed as part of federal projects, most archaeologists did not see a great deal of preservation potential in the NHPA.

What was truly needed, many thought, were amendments to the Reservoir Salvage Act of 1960 expanding the "data collection prior to development" requirements of that law to cover all federal projects, not just dams and reservoirs. For this reason, Bob McGimsey and Carl Chapman and many other archaeologists soldiered on, long after the passage of the NHPA, to secure passage of the Moss-Bennett amendments, which would turn the Reservoir Salvage Act into the Historic and Archeological Data Preservation Act (see also Chapter 1, this volume). Before they could succeed in this quest (which

they finally did in 1974), President Nixon had, in 1971 with a few strokes of a pen, already changed the future of archaeological preservation and research.

The back story behind the approval of Executive Order 11593, which was signed on May 13, 1971, has to be one of the great, largely untold, stories in the history of historic preservation. As Jerry Rogers (2016) recounts it, by the late 1960s, the destruction of historic places during federal agency activities (which had been the impetus for creation of the NHPA in the first place) was continuing, largely unabated. The agencies causing the greatest impact on historic places were very powerful and the newly created Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Officers (SHPOs) were not. The National Park Service could do little to stem this continuing destruction with the tools available to them. As Rogers points out, "[NPS] preservation program leaders might have chosen to limit their own reach at this juncture, but to their great credit they chose aggressive action by formalizing the obligations of the threatening agencies" (2016: 13). Robert Garvey, Ernest Connally, Robert Utley, and William Murtagh proposed an executive order that would specifically obligate federal agencies to find out what historic places their projects might damage or destroy. Working with high-level contacts in the Nixon administration, the four men succeeded in getting the White House to issue EO 11593, and as Rogers points out, this changed everything. It changed things for all kinds of historic places, but the effects were especially rapid and far reaching in archaeology.

The ACHP had issued guidelines for implementing Section 106 in 1969, but the more specific requirements placed on federal agencies by the executive order created a need for more formal guidance. In 1976, Congress amended the language of Section 106 to require consideration of NRHP-eligible properties as well as NRHP-listed properties, and the ACHP published formal procedures for Section 106 compliance in the Federal Register. In 1979, additional amendments to NHPA made the ACHP an independent federal agency, which then published the first actual regulations for Section 106.

Faced with the need to manage an increasingly formal compliance process, meet the requirement to identify historic places that might be eligible to the NRHP, and deal with this mysterious stuff called "archaeology," the federal land-managing agencies, the Department of Defense, and other agencies began hiring archaeologists to implement the new requirements of the law and the regulations. Realizing that one in-house archaeologist couldn't meet all the identification needs, much less excavate the NRHP-eligible archaeological sites that couldn't be avoided, some agencies began contracting for archaeological services first with the National Park Service, but also with local museums and universities, which were pretty much the only organizations where one could find and hire archaeologists at the time. It wasn't long before the American entrepreneurial spirit kicked in, and individuals and

partners began forming small businesses to compete for this archaeological work. An entire industry was born (see Chapters 9 and 13, this volume).

The need to ensure quality and consistency as more and more work was carried out by more contractors for more agencies, combined with the need for standardization in the huge amount of archaeological information being collected, led to a welter of regulatory efforts. Permitting at state and federal levels, promulgation of regulations, and publication of multivolume tomes of guidelines, standards, standardized forms, and all variety of commandments set our feet on the paths to archaeological righteousness. CRM became big business with a trade association, thousands of employees, and hundreds of millions of dollars in annual income. The 1986 version of 36 CFR part 800, the ACHP's Section 106 regulation, took up seven pages in the Federal Register; the 1999 version took up sixteen pages.

And all of this arose because a single executive order led to the insertion of the words "or eligible for listing" in the language of Section 106. Three generations of archaeologists and other CRM practitioners have built careers in federal agencies, SHPO offices, tribal CRM programs, local governments, and especially in the cultural resources industry because of these words. Hundreds of thousands of archaeological sites have been inventoried, thousands more have been tested, excavated, and analyzed as a result of this one tiny phrase in the NHPA. The nature and technological sophistication of American archaeology and our understanding of both the historical and precontact archaeological records have been enriched and broadened beyond recognition.

There is much to celebrate about the archaeology that has been done during all these years since the magic word "eligible" entered the world of the NHPA, and the potential for contributions in the future is striking. The huge amount of work that has been done has left us uniquely positioned to enter the era of 'Big Data' (see Chapter 11, this volume). Research teams and consortia of scholars (e.g., Kohler et al. 2015) have begun to harness the power of large archaeological databases and sophisticated analytical technology to examine the processes that have shaped human history (Kintigh et al. 2014). The results of this big picture work will not only contribute to our understanding of the past, but potentially to our planning for the future as well (Nelson et al. 2016).

The Topsy effect

I'm sure that no one involved in the development of E.O. 11593 would have imagined that this small change in the concept of Section 106 of the NHPA would ultimately turn CRM into nearly a billion dollars a year industry (Altschul and Patterson 2010: 297). The practice of CRM grew explosively during the final decades of the twentieth century and into the first decade of the twenty-first. Although this practice was bound by regulations and informed by guidance from federal agencies, regulations and guidance are

not vision, and to a large extent the evolution of CRM archaeology has taken place without much formal consideration of how we can best ***do*** archaeology in the context of federal undertakings and compliance with federal law.

There have been two major attempts by the archaeological profession to provide structure and a plan for continued growth, as well as proposed course corrections for the direction of archaeology carried out in compliance with federal mandates. Both of these efforts were sponsored by the Society for American Archaeology (SAA) with funding assistance from the National Park Service. The Airlie House Seminars in 1974 (McGimsey and Davis 1977) consisted of six intensive multi-day seminars focused on what were then perceived to be the major issues facing the newly emerging subspecies of archaeology that came to be called CRM. Relatively few of the recommendations from the Airlie House report were implemented, but the concepts discussed there influenced conversations about CRM within the profession through the 1980s (see Chapter 1, this volume).

The second effort within the profession to evaluate the state and direction of CRM archaeology was carried out between 1995 and 2000. A series of panel discussions, small working conferences, task force reports to the profession, and published results, all under the rubric "Renewing Our National Archaeological Program," yielded recommendations for improving CRM archaeology practice in the areas of resource stewardship and study; dissemination of information to the public; recognition of multiple interests in the remains of the past; training and professionalism; and information management (McManamon 2000). A number of the recommendations from the "renewing" effort were subsequently implemented through the work of various SAA committees, through the efforts of other archaeological organizations, and by the National Park Service. Other suggested course corrections have never really come to fruition.

Creation of the American Cultural Resources Association in 1995 and the Register of Professional Archaeologists in 1998 provided additional venues through which archaeological practitioners could collaboratively assess and propose improvements in the practice of CRM archaeology. Additionally, a variety of books on both the current practice and the future of CRM archaeology have been published in recent years (e.g., Neumann et al. 2010; Roberts et al. 2004; Sebastian and Lipe 2009).

Despite the efforts outlined above, CRM archaeology, like Topsy, was not "made" in the sense of having been created with a formal, unified plan to yield the best outcome for the civic good, the archaeological record, and the benefit of the American public; it just "growed." Although CRM archaeology has come a long way in 45 years, yielding astonishing amounts of data and offering great potential to provide insights about life in the past – and even guidance for life in the future – there are structural problems with the current practices that will seriously limit this potential if we don't find a way to address them.

So, what's left to wish for?

I've been working in CRM archaeology and historic preservation in many different roles for the past 37 years, and I have seen first-hand some of the problems of the Topsy-like growth of the field. I have watched as regulatory expansion and digital capture of data, which were intended to ensure high quality archaeology and consistent information, have created an inflexible process that leads us into unfortunate decisions and redundant results. I have observed that the practical realities of CRM as a business have shifted the focus of CRM archaeology away from the generation of knowledge and toward mere data compilation and rote compliance. And I have seen the increasing use of archaeology and other kinds of cultural resources, by CRM professionals, as legal impediments in an effort to prevent development, private as well as public. As a result of these observations, if a genie were to give me three wishes, I would ask for three things beginning with "B": balance, better choices, and public benefit.

Balance

Originally, the second section of the NHPA described the historic preservation policy of the United States government as being "to foster conditions under which our modern society and our historic and prehistoric resources can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations."[1] The Section 106 regulation begins by stating clearly that "the Section 106 process seeks to accommodate historic preservation concerns with the needs of Federal undertakings through consultation" (36 CFR 800.1(a)). Both the law in general and the Section 106 regulation in particular make it very clear what we are supposed to be doing here: finding a way to ensure that the needs of modern life are met while making the best deal that we can for the places that are part of our shared heritage.

Section 106 is not about stopping development; it is about finding creative ways to balance preservation and development in the public interest. The mechanism for making this happen is consultation. Ideally all the interested and affected parties sit down together with the federal agency and seek a path forward that comes as close as possible to meeting the needs of everyone – those who are trying to carry out modern development, those who prize the physical remains of the past, and those who are charged with certain responsibilities under the law. If everyone brings to the table their most creative ideas and a commitment to meeting everyone's needs, some truly satisfying outcomes can be achieved. It only works, however, when all of the parties are willing to accept balance between preservation and development as the goal.

If one of the parties has no interest in balance and only wants to engage with the Section 106 process as a possible mechanism for stopping the development project from happening, a number of bad things are likely to result.

Generally, the goal of such actions is death by delay – protest every decision, insist on extra reviews, argue for reopening already completed steps in the process, etc. And sometimes, though rarely, it works. The proponents go bankrupt, for example, or just decide to walk away from a process that is causing them to bleed money and add years to the planning process. But regardless of whether this strategy "works" or not, it convinces the other participants that this is a broken process, expensive, time-consuming, and stacked against them. Ultimately, the dissatisfaction of those who have experienced this failure to pursue balance comes to the attention of those whose attention we would like to avoid, like politically powerful industry organizations, Congressional committees, and investigative journalists.

While this kind of cynical manipulation of the Section 106 process is unfortunate in any context, when the manipulation is carried out or fostered by CRM professionals in the course of their Section 106-defined roles, it is wrong and, in the end, soberingly counterproductive. Advocacy is a noble calling; all of us have causes that are very dear to us. But someone who uses his or her formal role in the Section 106 process to pursue a personal cause rather than seek the best point of balance among the competing concerns is making enemies for preservation and putting the whole process at risk.

Since 1999, applicants for federal funds or authorizations have been defined in the Section 106 regulation as entitled consulting parties, but often they are treated with suspicion or outright enmity and excluded from participation as much as possible. If you treat people like the enemy, you create enemies; if you treat them like partners, they will generally, though not always, of course, rise to the occasion. I have worked with people in many different areas of the development community over the course of my career, and I have found that generally they are willing to do the right thing by the historic resources. This does not, however, alter the fact that they have a job to do and investors and employees who are depending on them. They have a right to expect us to engage with them in a process that is fair and respectful and mindful of their needs and concerns.

If we take our obligation to find a balance between the needs of our modern society and concerns about historic properties seriously, we must bring all the affected and concerned parties at the table – Indian Tribes, applicants for federal approvals and funding, residents of historic neighborhoods, archaeological organizations, etc. And we need to create a regulatory and consultation process where everyone respects and seeks to understand the needs and concerns of the other parties so we can work together to find the balanced solutions, the productive harmony.

Better choices

The first time that I heard Heidi Roberts describe being required to record Barbie doll parts during an archaeological survey (see Chapter 10, this volume), the word that came immediately to mind was "Proxmire." Those of us

of a certain age will recall Senator William Proxmire of Wisconsin who, from 1975 to 1988, gave out monthly Golden Fleece Awards to public officials who, in his opinion, were wasting public money. Most of the awards were for research studies, and we learned two things: One, it's really easy to make science sound stupid if that's your goal, and two, even a U.S. Senator with two Harvard degrees can fail to understand that there is no way to know ahead of time whether basic research projects will produce useful results or not. Some of the projects that received his awards went on to produce valuable results, some were canceled out of hand, so we will never know whether they would have paid off or not, and some were probably just as dumb as they sounded. When I heard about recording Barbie data, I thought that it was probably just as well that the Senator is no longer with us.

I have argued elsewhere (Cushman and Sebastian 2008; Sebastian 2009) that NRHP eligible/not eligible is not really a useful tool for making management decisions about archaeological sites that are significant for their potential to yield information. It is useful for places that are significant for their association with events (it is either a stop on the Underground Railroad or it's not) or their association with historically important persons (it is either associated with Alexander Hamilton or it's not) or even properties that are significant for their style or method of construction (it is either a high-style Queen Anne house or a through-truss bridge or it's not). For significance under criterion D, however, it is not a question of "does it have information or does it not?" Every archaeological site has at least some crumb of information to offer about history or prehistory, even if it is just a point on a map where human activity occurred in the past.

The standard, of course, is "important"; to be eligible to the NRHP the site must have the potential to yield "important" information. Important is defined in terms of current research interests and data gaps, however. If archaeologists know anything, they know that things change through time, so many of us are leery of categorizing a site as "not eligible," based on *current* research interests and analytical technology. "Not eligible" is most often a death sentence in the world of Section 106, and we know that in ten years or 20 we may bitterly regret the loss of those sites. So we end up with lots of archaeological resources all labeled identically as "eligible," regardless of whether they are a small artifact scatter with an intact hearth or an 80-room late precontact pueblo with a large midden and three kiva depressions.

Because our standard for evaluating significance under Criterion D doesn't include a provision for assessing and categorizing sites according the nature, extent, rarity, or quantity of the information they have the potential to yield, and because CRM archaeology has become a rigidly bureaucratic process, there is a perception that we do not have the flexibility to make nuanced decisions about how best to manage all these different kinds of sites that are labeled "eligible." As a result we end up with a lot of unfortunate decisions, decisions that are both bad public policy and bad archaeology.

In a recent publication (Sebastian 2016: 280–281) I recount a fictional scenario of being out on a survey in an active dune field where I find a tiny site with a few flakes, a piece of burned caliche, and a very nice Middle Archaic point. Just as I'm thinking to myself that the thing we need most in life is some good radiocarbon dates for points of this type, I notice in the face of the dune the last intact remnant of a largely deflated hearth associated with this point, and there are visible flecks of charcoal in the remnant of fill!! My fictional self then asks, "Do I fill out a site form, record the six flakes, collect the point, bag up what little is left of the hearth fill, and run back to my lab, praying for enough charcoal to run an AMS date? Not if I value my life and my survey permit" (2016: 280).

No, indeed, for this is now an eligible site. I have to write a survey report, submit it to the federal agency, wait while they submit it to SHPO for concurrence on eligibility, write a data recovery plan, apply for an ARPA permit, and wait while the parties write, revise, and execute an MOA agreeing that data recovery employing the research design that I have submitted is the appropriate approach to resolving the adverse effects of the project on this site. After five months, I can finally go back to the site. Unfortunately, this being New Mexico and it being spring, the site will have long since blown away.

The point here is that there is nothing we can do about "NRHP eligible/not eligible" being the only legal mechanism that we have for assigning significance to sites. This doesn't mean, however, that we have to manage all eligible sites in the same manner at all points in the Section 106 process. Through programmatic agreements and other program alternatives, through consultation among all the potentially interested and affected parties, we can create pre-agreed upon and potentially streamlined, simplified approaches to identification, evaluation, mitigation of effects, and other management decisions for different kinds of eligible archaeological properties.

It may be that in some universe where I don't live, Barbie doll massacre sites are eligible historic properties. That doesn't mean that we have to piece plot all the gory dismembered remains. It certainly is true that in my universe a site with the potential to provide a chronometric date for a Middle Archaic point is eligible under Criterion D, however limited and deflated that site may be. But this shouldn't mean that we have to go through a full-blown 5–6 month process before we can collect at-risk samples.

Another example: what about sites that are of a kind that have been excavated many times and from which more or less the same data are usually recovered? Being aware of the likelihood of new questions and new analytical techniques in the future, we don't want to let them all go under the bulldozers because we have termed them "not eligible." Neither, however, do we want to subject them to extensive data recovery in order to learn, once again, that ancestral Pueblo people ate corn. There is no reason why we can't develop different mitigation/data recovery/long-term management approaches for different kinds of eligible archaeological properties.

At the seminar that resulted in the Sebastian and Lipe (2009) book, we came to a remarkable consensus about how to improve Section 106 for the future. There is nothing wrong with the law, we decided, and there is very little wrong with the regulation; what is needed is better, more creative use of the flexibility that is *already available* to us. We decided it could all be summed up in a single symbol: SDSS[2], which stands for "stop doing stupid stuff; start doing smart stuff." We need to make better decisions in the future. We have the tools available to us already, we just need the creativity and the willingness to change.

Public benefit

If my first wish was that we all take to heart *what* we are trying to do here, and my second was that we make better decisions about *how* to do it, my third wish would be that we remember *who* we are doing it for.[2] Section 1 of the NHPA, as passed by Congress, said, in part,

> the spirit and direction of the Nation are founded upon and reflected in its historic heritage; the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense of orientation to the American people; . . . the preservation of this irreplaceable heritage is in the public interest so that its vital legacy of cultural, educational, aesthetic, inspirational, economic, and energy benefits will be maintained and enriched for future generations of Americans.[3]

To conclude this essay, I would like to offer a few thoughts about the public benefits of what we do in CRM archaeology. Why do we need to worry about public benefits? There are any number of philosophical answers that could be made to this question, but the overwhelming practical reason is that every single thing that happens in CRM is paid for, in one way or the other, by the American public. We owe it to them to ask ourselves, "What are we giving them in return?"

Section 1 of the law identifies the general benefit of what we do – provide a sense of orientation to the American people – as well as a list of specific kinds of benefits – cultural, educational, aesthetic, inspirational, etc. Historical archaeology can speak in a very direct, tactile sense to the events of Euroamerican settlement on this continent; the archaeology of precontact peoples can broaden and enrich our perceptions of the whole of the human experience here. The time depth provided by archaeology can inspire us with wonder at the diversity of human cultures, admiration for the tenacity and resilience of the human species, and a sense of kinship with those who lived so long ago, in worlds so different from our own, and yet experienced the same needs and aspirations as those that guide our lives today.

These benefits don't magically appear, however, just because we do a survey, write a report, prepare a research design, dig a site, analyze the materials, write an excavation report, send the artifacts and records to a curation facility, pack the equipment into the trucks, and move on to the next project. There are two missing links here – we have to generate actual knowledge about life in the past, and we have to transfer that knowledge to the public in ways that will provide cultural, educational, aesthetic, and inspirational benefits.

For the past three years I have been working on an all-volunteer project to create short videos for the public on "cool things we've learned about life in the past" as a result of 50 years of archaeology carried out under the requirements of the NHPA. The concept was that the professional archaeological community in each of the 50 states would work together to create a short, engaging video for the general public about something that CRM archaeology has revealed about life in the past in that state. This project would serve as a gift to the American people from the archaeological profession in honor of the fiftieth anniversary of the NHPA. As I write, with a little over a month left until the anniversary date, we have 14 completed videos with four more nearing completion.

I've learned several things from this experience. One is that creating a video is really hard; that darned Ken Burns makes this stuff look so easy but it is not. The second is that most CRM archaeologists don't feel that they have the time or, to be fair, the skills to produce products from their work for the public. The third discovery was the most surprising and the most disheartening: most of my colleagues struggle to come up with a suggestion of something that we have learned *about life in the past* that we could share with the public. Virtually all of the topic suggestions that I received were things that we have learned *about the archaeological record*, not things that we have learned about the lived experience of people in the past.

Over the years CRM archaeology has amassed an enormous amount of data and translated it into in-depth knowledge about chronology, lithic technology, distribution of ceramics, butchering practices, geomorphology, settlement patterns, use wear, taphonomy, lipid residues, and hundreds of other topics that are fascinating to archaeologists. What we haven't done (with some rare and exemplary exceptions) is to synthesize this information about the archaeological *record* into vivid, compelling, jargon-free narratives about the archaeological *past*. It is only by connecting people of today with both the universal and the unique human experiences of those who lived in the past that we can provide the cultural, educational, aesthetic, and inspirational benefits to the public envisioned in the NHPA.

Although many individuals and some CRM organizations attempt to meet the needs for both synthesis and public engagement to the extent that they can, synthesis is expensive, time-consuming, and rapidly outdated and public engagement is only occasionally funded in contract work. What we need is a regular, systematic mechanism for synthesizing CRM data and

translating it into products for the public. With all the marvels of modern communications technology, from YouTube to georeferenced phone apps to virtual reality to who-knows-what's-next, we have far more opportunities to share the wonder of the past and the educational potential of archaeology with adults and children than we could ever have imagined 50 years ago. All we need is the content and the will to make this happen.

Recently (Sebastian 2016: 279), I suggested that we could pursue a $1 million annual appropriation out of the currently unappropriated millions in the Historic Preservation Fund to be dedicated to synthesizing archaeological data and producing high-quality public products, including STEM-oriented materials for schools. Competitive grants for teams interested in synthesizing the information and developing creative, innovative ways of sharing the results with the public could be made available on a rotating regional basis, so that every . . . 10 years, let's say, new knowledge and new products would become available in every part of the country.

Would such a program even be possible? Who knows? On the other hand, not very many people would have bet that Garvey, Connally, Utley, and Murtagh could get EO 11593 out of the Nixon White House or that McGimsey and Chapman could get the Reservoir Salvage Act amended to cover all federal projects. You don't know until you try, and trying to increase the public benefit of the work we do is critical for the future of CRM.

Notes

1 Unfortunately when the law was recodified from Title 16 of the U.S. Code to Title 54 in 2014, the Office of the Law Revision Counsel of the United States House of Representatives changed this language to say "under which our modern society and our *historic property* can exist," a failure of global find-and-replace at its worst and a blot upon one of the most inspiring sections of the law.
2 Or, "for *whom* we are doing it," if I happen to have encountered a grammatically persnickety genie.
3 The Office of the Law Revision Counsel of the United States House of Representatives chose to omit all of Section 1 from the U.S. Code as part of the recodification from Title 16 to Title 54.

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16 Perspectives on leadership and CRM programs for the twenty-first century

Francis P. McManamon and Jerry L. Rogers

The 2014 symposium, "Forty Years of Cultural Resource Management," at the Society for American Archaeology Annual Meeting in Austin that provided much of the content, inspiration, and impetus for this book left us "hungry" for more discussion of what CRM programs could and should accomplish in the twenty-first century. Other chapters in this collection of essays review the aspects of existing programs and CRM topics as they have developed in the last quarter of the twentieth century. We first touch on aspects of contemporary programs as well, then we identify and discuss needed additional activities and program features.

A few people who were present at the 2014 symposium, the authors of this essay among them, found it pleasing in personal, as well as professional, ways. This was because we had long ago formed broad notions of what the field of CRM could be and how it might develop as time passed, experience was gained, and circumstances changed. What we heard about the field as it is today aligned remarkably with what we had very generally envisioned when programs and practices were in much earlier stages. Our "hunger for more discussion" reflects a continuing fascination with potential for the future, a yearning for strategy, a need for answers not just to "what next?", but also, to what comes after the next stage and then after that as well.

As noted in most of the essays in this book, the National Historic Preservation Act of 1966 (NHPA) and its subsequent amendments are key to the configuration of archaeological and historic preservation in the United States today. This central statute is supported by a strong foundation of statutes from earlier in the twentieth century, mainly the Antiquities Act of 1906 and the Historic Sites Act of 1935 (Harmon et al. 2006; Hosmer 1983: 10–13; Rogers 2006). The NHPA is a logical extension of the policies formulated by the earlier statutes.

The NHPA plowed new ground as well. The law created the Advisory Council on Historic Preservation (ACHP) and led to the creation of other organizations that today define important aspects of preservation and compose the network of state, local, tribal, and federal agency preservation officers in the United States archaeology and historic preservation system. It provided a context for the development of formal procedures that articulated

the roles that organizations at the local, state, and federal levels would play in determinations of resource significance and the review of undertakings that affect cultural resources (e.g., see chapters in Banks and Scott 2016).

The statutory framework did not automatically generate the administrative procedures and organizations that would implement its goals and objectives. Agencies, policies, and procedures had to be planned, negotiated, and established to implement the needed programs. Robert Garvey, at the ACHP and George Hartzog, Robert Utley, and Ernest Connally, at the National Park Service (NPS) were instrumental in developing these organizations and procedures. These individuals and many others in federal, state, and local agencies, saw opportunities to improve the knowledge about and preservation of the full range of cultural resources when faced with the need to develop the organizations and procedures that would implement the new law (Glass 1990; Hosmer 1983; Mackintosh 1994).

Forceful, yet collaborative leadership continued to be important in the early years of CRM's development. Nearly a decade after the enactment of the NHPA, the seminal events of 1974, including the Airlie House seminars took place because leaders of National Park Service archaeology programs and forward-looking professionals in the field of archaeology recognized the essential role of vision and took action to fill the need. Similarly, the Denver CRM conference was organized, funded, attended, and the results published by current and emerging leaders in the discipline. Vision alone does not create a future, but it helps to avoid directionless thrashing and to make things happen in cumulative and positive ways. The essays in this collection are replete with evidence of success in building on these early efforts and provide even more evidence of how much growth and positive change has occurred. Most likely it was easier to invent a sound vision in the beginning when little had been done than it is to update one now, but it is no less important now.

Who must the leaders of CRM in the twenty-first century be who will keep the vision ahead of the present and the actions in pursuit of it cumulative and positive? Such things happen only when someone or a dedicated group of individuals makes them happen, as Lipe and Sebastian (2009) and Davis (2009) also observe. CRM in the future will continue to require general leadership and coordination provided by government agencies, and therefore the NPS and the ACHP must carry leadership burdens. At the federal agency level, federal historic preservation officers (FPOs) must likewise take on leadership for cultural resource preservation and appropriate treatments. At the state, tribal, and local governmental levels preservation officers need to take responsibility for the resources they oversee. Equally apparent is the necessity to keep CRM working to the highest professional standards and focusing on the most important questions, and therefore the Society for American Archaeology, the Organization of American Historians, and related organizations that maintain CRM-related disciplines must be leaders.

Some things are very different now. Tribal cultural heritage programs have become strong in many places. They sometimes view archaeological sites as intrinsic elements of contemporary cultures rather than as repositories of data

and information about past cultures. Such situations may create conflict within the CRM community regarding the proper treatment of the specific disputed resources. The profession has benefitted by learning to respect the traditional values of tribes, and tribes are increasingly employing archaeologists in order to advance their cultural, historical, and scientific interests rather than simply resisting or condemning them (e.g., see Chapters 4, 7, and 8, this volume).

Greater participation and impact by tribal communities is not the only change in the amount of attention paid to the treatment of cultural resources and CRM projects (e.g., see Chapters 14 and 15, this volume). Green and Doershuk (1998: 143–144) noted in their review of CRM and American archaeology 20 years ago.

> The number and diversity of stakeholders and decision makers in CRM is staggering. Governmental agencies, elected officials, federal permitees and licensees, consulting firm owners and staffers, cultural-resource workers, academic-based archaeologists, traditional communities, "the public" in general – all have differing views on how cultural resources can or should be used and how funds should be allocated for these uses.

Another change is that substantial percentages of American voters no longer value government itself as they did in 1974 and the strong government role required for a successful future will depend on broad public support. The organizations that once generated public support have themselves changed, in one case even to the point of generating television programs about "archaeology" that unintentionally undermine rather than advance CRM. Two of the essays in this book (see Chapters 9 and 13) describe CRM as an "industry," which suggests a continually increasing role for profit and loss factors related only to success in business entirely aside from how cultural resources are handled. Each of these differences requires an approach to leadership that was not generally necessary 40 years past.

There are signs of "morbidity" in CRM, although happily only a few. National Register Criteria for Evaluation contain a brief reminder that the passage of 50 years may be a factor in determining whether something is significant, but the widespread habit of calling this a "50 year rule" sometimes causes the field to appear doctrinaire and unreasonable. Similarly, the very sensible acknowledgement by archaeologists that digging a site today reduces the potential for gaining more information by digging it later with better technology has led some to embrace a "hands off" approach that prevents research that reasonably should be done now (see comments in Chapters 1, 3, and below in this chapter). CRM firms need to make a reasonable profit, but to the degree that the profit motive causes unnecessary work to be done or leads to shallow interpretations and submission of boilerplate in reports – aiming only to meet contractual requirements at minimum costs – CRM is in decline rather than in the ascendant. Such problems can be headed off before they grow into genuine threats, but only with deliberate attention (e.g., see Chapters 4, 5, 9, 10, and 15, this volume and below).

This is not to suggest that leadership is absent. When members of the profession convene to articulate "Grand Challenges" and necessary infrastructure for future research (e.g., Kintigh et al. 2014a, 2014b, 2015), they are keeping the field new and alive, but only action by leaders in the government sector can ensure that programs address the challenges. Citizens given a chance to participate through volunteer programs like Sitewatch and "friends groups" devoted to specific places not only provide a valuable service, but also become part of the political support that sustains the government role (e.g., Chapters 7 and 14, this volume and Stuart and McManamon 2000). Tours, lectures, seminars, and other educational activities by professionally-grounded non-profit organizations, such as the Archaeological Conservancy, the Archaeological Institute of America, and Crow Canyon Archaeological Center are reaching more people than ever. Archaeological societies across the country, once a source of worry to the profession, are learning to function as watchdogs and helpers, for example as Site Stewards (e.g. Kelly 2007).

Partnerships between CRM programs and others have become an important means of improving resource preservation and treatment (e.g., examples from many states are described in Chapter 7, this volume). In some situations, partnerships have provided a means of overcoming limited or reduced funding. For example, Trimble and Farmer in Chapter 12 of this volume summarize an innovative program developed by the Corps of Engineers to substantially improve the care and curation of the archaeological collections for which it is responsible while providing useful training that develops marketable skills for military veterans. In Chapter 14 of this volume, Mayro and Doelle describe regional planning in southern Arizona, where partnerships among individuals and organizations promoting the preservation and interpretation of cultural resources and those concerned about natural resource conservation have created a local political framework that accomplishes both goals. As a whole, the chapters in this volume demonstrate how broad CRM in the United States has grown since beginning in the early 1970s.

In addition to the longer-term strategic approach needed for CRM to be effective in this century, there are several challenges that need to be confronted and resolved successfully in the near term. The essays in this book are forward looking. However, the recommendations for retention of good existing practice or for the development of improvements are based upon the decades-long experiences and observations of the authors. In the next sections, we focus on four important and specific aspects of contemporary CRM that require attention and improvement. A number of the examples and data that we use refer to archaeological resources; however, the same or similar situations apply regarding other kinds of cultural resources.

Providing easy access to ensuring preservation of CRM data and information

The challenge of making data and information accessible, useful, and assuring that it will be preserved and accessible for future use has been with CRM

since its earliest days. The challenge of providing for the communication of CRM data and information was noted within the archaeological portion of CRM early in its development (Chapter 1, this volume). In the 1974 Airlie House archaeological seminars, two topics related to providing access to information. One topic was what should be included in CRM archaeology reports, the other was how information should be shared with nonprofessional audiences (McGimsey and Davis 1977: 64–90).

This exact issue also was discussed and its importance emphasized in presentations at the 1974 Denver CRM conference. Scovill (1974: 11) advised that ". . . archaeologists should begin now to develop and implement a data management system, a system for the storage and curation of artifacts, a system for coordinating and evaluation proposed research, a system for evaluating the quality of work performed . . ." In his comments at the same conference, Ray Thompson, like Scovill, emphasized the growing importance of sharing information. Speaking about institutional responsibilities as part of the new conservation approach, he (Thompson 1974: 20) noted that organizations like the Arizona State Museum, of which he was Director,

> . . . are purveyors of information, in our case information about archaeological resources. We cannot handle the increasing body of archaeological information unless we control it and understand it. An unavoidable institutional responsibility, therefore, is the development of information management systems that will enable archaeologists to make the judgments about archaeological significance of sites on a regional basis as required by federal regulations.

Effective access to the wealth of information created as part of CRM archaeology was a problem from the earliest period of CRM's development. Schiffer and Gumerman (1977: xxi) noted that, even at this early point, it was difficult to find reports because they were "buried in file cabinets (p. xxi)." They expanded this brief comment later in their book, writing that access to information from CRM projects is a

> . . . problem area . . . [; improvement in] the dissemination of information . . . does need underscoring. In the long run, work that goes unreported or uncirculated is not really different from work that was never begun . . . Ironically, the major barrier to information flow in purely academic archaeology – the lack of analysis and report preparation – does not affect contract work. Thus, one hopes that because the reports usually are written, it will be a fairly simple matter to find ways to reproduce and disseminate them to the appropriate audiences.
>
> (Schiffer and Gumerman 1977: 85)

The hope expressed by Schiffer and Gumerman was fulfilled in the sense that CRM projects produced a flood of information and mountains of

paper documents. However, this exposed a further problem, which Longacre described a few years later. He noted, in a review of a sample of CRM literature, that ". . . the sheer volume of publications makes it impossible to keep abreast even within a traditional region such as the SW United States (Longacre 1981: 487)."

Somewhat later, Lipe (1996: 25) noted that some of the results of 20 or so years of CRM studies had produced

> . . . an enormous amount of new information about the archeological record . . . The descriptive reports resulting from this work are increasingly being done to a very high technical standard. Yet even reports representing hundreds of thousands of dollars of research are often difficult to obtain, and may lack concise synthetic and problem-oriented summaries useful to scholars.

In a recent further comment on this topic, Lipe (2012, personal communication) wrote that CRM-explicit scopes of work have required that most major projects produce reports that are quite detailed and informative. On the other hand, many of the earlier emergency/salvage projects produced little in the way of usable reports, in some cases because funding for analysis and reporting was not included in the contract. During the earlier period, it was often taken on faith that academic and museum archaeologists would produce reports as part of their ordinary professional activities.

While we can be glad for some improvements in this area, the problem and challenge of providing broad, easy, and useful access to CRM data and information still is with us.

> One of the strongest criticisms of archeology today is the failure to recognize the basic responsibility to make available to the wider archeological community, and ultimately to the general public, the data and interpretations from the investigations required by law and regulation.
> (McManamon and Wendorf 2000: 45)

What can be done to meet the challenge of access to CRM data and information? Digital technology and electronic means of communication provide the means of meeting this long-standing challenge of accessing CRM information. The creation of data and information in digital formats about cultural resources is widespread. Archaeological, historical, historic architectural, and other kinds of cultural resources are described and reported in standard digital document file types, as digital images, and by digital datasets. Use of the Internet for communication make access to and sharing of data and information much easier. Technologically, there are a variety of digital formats in which these data exist. CRM experts should use standard, durable, and archival digital formats and use them consistently. Also

necessary are standards for metadata that describe the data and texts in the digital files. Finally, the data, contextual, and related relevant information need to be in repositories where they are discoverable and accessible (e.g., McManamon and Kintigh 2010; see, Archaeology Data Service/Center for Digital Antiquity 2011, 2013; McManamon 2014; Kintigh et al. 2015; McManamon et al. 2017).

The data and documents should be in digital formats that are easily read by commonly used computer programs. Rapid developments in both hardware and software require that any solution include periodic and systematic updating of data and documents to new formats is necessary so that the information contained will continue to be accessed and used in the future (Archaeology Data Service/Center for Digital Antiquity 2011, 2013).

For decades, access to CRM data and reports has been limited by difficulties related to where paper copies are located, travel to museums or other repositories, and limited number of copies of reports. The information that could be derived and utilized if these data and reports were more widely accessible is important for understanding American archaeology, architectural history, history, and other aspects of traditional American culture and for CRM, preservation, and protection.

Archaeological data and information derived from CRM investigations provides a useful case study. Hundreds of thousands of archaeological studies and reports produced during the last 40 years of CRM archaeology are currently difficult to access. Broader and easier access to the results of past investigations will increase the usefulness and efficiency of records checks and other background research, reducing the need for new archaeological field studies as part of project review. Improving the ease of access to and use of reports of past investigations will increase the accuracy and efficiency of these relatively low cost reviews. With reduced professional staffing in many public agencies and other organizations, it is important to find means that will maintain project reviews and review quality.

In most cases, the investigations that these reports describe and the information derived from them have been paid for with public funds. The American public has every right to expect that this information is accessible and being used to better understand, interpret, manage, and protect the important resources that are the focus of the reports.

The challenge regarding long-term preservation and access to archaeological data and reports must be recognized and met. Synthesis of information already obtained from investigations is needed to improve the assessment of the significance of resources as part of cultural resource and environmental impact evaluations. Working efficiently requires that information already known be utilized for decision-making, planning, and many other actions important to resource management. Access to data and reports, in particular is needed to improve the synthesis of knowledge about the archaeological record (Kintigh et al. 2015; McManamon et al. 2017).

Access to digital data and reports would be most efficient with a coordinated effort. However, it is most important to begin the process immediately, however piecemeal. Specific aspects of the challenge include:

- compiling existing digital data and reports and scanning paper copies to create digital versions if "born digital" files do not exist;
- depositing these files in a stable and trusted digital repository where they are well curated, discoverable, accessible for use, and preserved; and
- ensuring that confidential and sensitive information, such as site locations, is not shared with individuals who would harm sites.

Public agencies, CRM firms, academic researchers, and other organizations concerned with the use and preservation of CRM data should include these activities as part of their normal professional practice. It would be efficient to develop a common approach, procedures, and standards to compile electronic archives of the digital data and reports from CRM archaeological projects. Most, if not all, reports produced at present and during recent years are in digital formats. As part of common practice, these already-digital data and documents should be deposited in a disciplinary digital repository where they can be made accessible and preserved for future uses. With additional attention to this problem and funding, agencies also can develop programs to scan systematically the backlog of paper reports, which will help ensure long-term preservation and much better access to these legacy data.

Some organizations and individuals have begun to address this challenge. The Digital Archaeological Record (tDAR), an international digital repository has been established and is maintained by the Center for Digital Antiquity (Digital Antiquity) at Arizona State University (McManamon et al. 2017).[1] Public agencies, CRM firms, academic researchers, and other organizations now use tDAR as the repository for their archaeological data and information. Most of the data and documents relate to archaeological resources, but tDAR also includes substantial content related to historic structures and history.

The development of the Internet as a tool for information sharing and communication facilitates the transfer of data and texts in digital formats. Where formerly archaeologists working on multi-region or multi-time period research questions compared their data with conclusions and interpretations of other archaeologists, now there is a growing ability to directly compare and analyze basic data drawn from multiple regions and time periods. These exciting developments have the potential to increase the value of archaeological data from CRM archaeological projects through wider utilization by scientists, scholars, and descendent and local communities (Kintigh 2006; Kintigh et al. 2015; McManamon and Kintigh 2010; McManamon et al. 2017; Snow et al. 2006).

Partnerships among organizations provide another means of making progress on improving access and preservation of digital data. Digital Antiquity has partnerships with the Society for American Archaeology and the Archaeological Institute of America to promote best practices in digital data curation. Digital Antiquity also is working with other groups, including FAIMS (the Field Acquired Information Management Systems) in Australia, Open Context, and the Digital Index of North American Archaeology (DINAA) on crosslinking and sharing digital data. Data sharing with other data repositories also has the potential for improving discoverability and access to data through partnerships with DataONE (www.dataone.org/organization), the cultural programs of the National Snow and Ice Data Center (https://nsidc.org/), and Archaeology Data Services (ADS) in the United Kingdom (http://archaeologydataservice.ac.uk/).

Easier and wider access to archaeological and other CRM data and reports has many benefits. Some are practical, for example, earlier and quicker access to information can improve the preservation and protection of resources. Early detection through records searches and background research of about resources already known from past studies make it easier to avoid them in the planning and construction of modern developments.

Other benefits are longer term, as when scientific research, scholarship, community projects, or individual cultural interests contribute to a broader, more inclusive understanding of ancient and historical times, and human cultural development in general. The recent collaboration by a group of distinguished scholars resulted in a synthesis of "grand challenges" for future archaeological research (Kintigh et al. 2014a, 2014b), which describes important research topics and indicates areas for fruitful future archaeological studies. Importantly, in the articles' conclusions, it is noted that an important source of data and information to address these grand challenge research topics is existing data from past studies, which needs to be utilized to address these important topics.

Long-term preservation of and improved access to CRM data and information should be important goals of all the agencies, individuals, and organizations involved in the consideration, management, and treatment of cultural resources. Improving the access to this information is essential for improving management of these resources.

The CRM collections curation challenge

A primary critique of the emergency/salvage archaeology prominent in the 1950s and 1960s was the high frequency of excavations that were not followed by thorough description, analysis, synthesis, and publication of the investigation results. Collections and records from many emergency/salvage projects suffered from a lack of attention after the field investigations ended.

The lack of attention to curation in the emergency/salvage era contributes to the contemporary problems of archaeological curation and collections management (see summary by Snyder et al. 2000). The advent of CRM did not cure the collections curation backlog problem. Like concerns described in the preceding section about improving access to and preservation of archaeological data and documents, the curation of physical collections also dogged emergency/salvage archaeology. In fact, because of the increase in the number of investigations, it worsened the situation (Childs 1995).

Particularly since the early 1990s when the federal regulations on the curation and care of archaeological collections (36 *CFR* 79) went into effect, more effort has been focused on the "curation crisis." Collection policies related to new archaeological fieldwork and steps taken to improve the care and curation of existing collections have helped (e.g., Chapter 12, this volume; essays in Childs 2004, 2010). The focus on federal collections inventories and summaries required in order to comply with the Native American Graves Protection and Repatriation Act also led to more attention to the curation of collections derived from CRM investigations.

Collections have two primary components: (1) the artifacts and other material remains recovered as part of CRM fieldwork, and (2) the records associated with these investigations, such as field and analysis notes and records, photographs, computer data files, and reports. Collections are curated in federal agency facilities or other appropriate repositories, such as state museums or university museums. Curation of archaeological collections is part of federal agencies' stewardship responsibilities to ensure the long-term preservation of these archaeological resources and to provide access to them for educational, religious, and scientific uses (36 *CFR* 79.10).

Archaeological collections held and managed by federal agencies, which of course are only a part of the collections of material and records from CRM projects, are reported to total nearly 46 million artifacts, plus over 100,000 cubic feet of artifacts for which counts of individual artifacts are not available (Departmental Consulting Archeologist 2010: 48–51). Federal agencies report that curatorial processing is proceeding, albeit slowly. Although agencies have made progress in cataloging, much, much more is needed to complete this required activity. Only when cataloging is completed on the backlog of collections and new collections are accessed and cataloged routinely, will the full range of uses for research and management be possible.

Associated records are the second part of collections. Federal agencies reported holding almost 26,000 linear feet of records associated with archaeological collections in 2007. These records consist of field notes, analysis notes, photographs, maps, unpublished papers, catalog records, reports, and data on various sorts of digital media, among other things. Most of these records are on paper; however, an increasing percentage are on digital media. The associated records are essential components of archaeological

collections and their preservation is crucial. Without the associated information in the records, the context of the objects is lost and the objects far less informative for research or public interpretation.

As discussed in the preceeding section, action is needed to provide better access to all of these records and to ensure that the digital records are preserved for the long term as required by law. Special attention is necessary to maintain digital records. Simply shelving the media (e.g., computer tapes or disks) or placing it in a file cabinet, typical curatorial practices at present, is not an adequate method of preservation, much less a way to ensure access to the associated records portion of archaeological collections (Departmental Consulting Archeologist 2009: 35–38, 2010: 51). There are existing standards, guidelines, and repositories for archaeological digital data and these need to be accessed and utilized for CRM archaeology digital information (Archaeology Data Service/Center for Digital Antiquity 2011, 2013; McManamon 2014; McManamon et al. 2017).

The steady rise and expansion of curation fees reported by Childs and Kagan (2008) indicates that existing funding is not sufficient to support the curation of archaeological collections. Public agencies and other organizations involved in CRM archaeology need to continue to focus attention on the collections curation topic.

A specific action that individuals and organizations involved in CRM should undertake is to develop specific professionally sound procedures to control the amounts of artifacts and other material remains that are collected by new field studies, including excavations. The careful use of sampling during fieldwork, based on recommendations by experts in the artifact classes being sampled, should be considered as one means of reducing the amount of material ultimately accessioned and cataloged in archaeological collections.

Dealing with the professional demographics

The professional workforce in CRM is aging. In public agencies and other CRM organizations, retirements among the cohort hired at the beginning of the growth of public sector CRM in America have begun and will accelerate during the next decade. In many instances, replacements for these experts have not been hired at a rate that ensures an easy transition from one generation to the next.

At present, the hiring of new career professionals appears to be insufficient to replace the professionals who have already or soon will be retiring. As an example, the NPS hired nine professional archaeologists in the five-year period between 2003 and 2007. During the same period, however, the NPS lost 23 permanent, full-time archaeologists through retirement (Departmental Consulting Archeologist 2010: 79–81). If the status quo in hiring and replacing NPS archaeologists continues during the next decade, the NPS professional archaeological workforce will be less than 100, down a third

from the 2007 number of 154 permanent, full-time professional archaeologists. An informal review by the NPS Archeology Program identified a sample of 14 retirements or resignations of NPS archaeologists from permanent, full-time positions between 2004 and 2007. In eleven cases (78 percent), the positions were eliminated or left vacant following the incumbents' departure. The positions in question were not clustered in one region or state; included were examples from Pennsylvania, Florida, Nebraska, Colorado, New Mexico, Washington State, California, and Washington, D.C. In some cases, the functions that were carried out by the former employees have been assigned to others, sometimes on a rotating basis, sometimes permanently.

The replacement of retiring professionals is a challenge not unique to the NPS or other public agencies or even to the archaeological profession or CRM more generally. It is an important and significant challenge that must be addressed. The CRM workforce in the public and private sectors is small by comparison to other experts in natural resources and public planning professions. More importantly, the activities required for good stewardship of cultural resources that are the responsibility of public agencies or affected by federal undertakings have not decreased; in fact, the workload has expanded (Departmental Consulting Archeologist 2010: 17–24).

It may be possible to delay some of these retirements and avoid a precipitous loss of professional work experience and expertise. General policies to encourage longer work lives should be implemented and employment procedures made more flexible to encourage the retention of older workers or part-time work by recent retirees. Programs and policies that make it easier to hire or retain older workers, encourage lifelong learning, and develop "flexible retirement" arrangements of all kinds would be helpful for the continued effective function of the CRM sector. If experienced older CRM experts can be retained as new professionals are hired to replace them, the former can undertake roles as mentors or trainers. Such arrangements would enable the more experienced workers to transfer to the younger cadre the lessons that decades of work have taught them and reduce the ultimate loss of "organizational memory" when they do retire permanently.

Conservation for what?

Public agencies and private organizations that manage cultural resources need to have carefully designed programs for the preservation of archaeological sites for which they are responsible. It is not sufficient to state that the agency or organization will "preserve" the resources. Details are needed about how the resources will be maintained in good or at least stable condition, how they will be interpreted, and how, ultimately, they might be used (e.g., McManamon et al. 2016: 135–136). Then, the responsible organization must make available the staff and/or funding to carry out the necessary actions.

When the well-respected archaeologist whose name is most frequently associated with conservation archaeology publishes an article entitled, "In

Defense of Digging: Archeological Preservation as a Means, Not an End," and commenting on preservation programs that have blinders on, others should take notice and pay attention. Twenty-two years after publishing "A Conservation Model for American Archaeology," Bill Lipe (1996) warned that a strictly "hands off" approach to site conservation would prohibit appropriate, focused investigation of archaeological resources in order to learn about the past. Cognizant of his own professional history, Lipe (1996: 24) commented that he was

> . . . not a likely candidate for promoting the indiscriminant excavation of sites that have been preserved in place . . . I don't want to argue against a conservation ethic, but to consider whether our current zeal for preserving archeological sites may not in some cases be undercutting our ability to realize the values for which they are being preserved.

The approach that advocates for site preservation as an end in itself ignores the fact that archaeological sites most frequently are significant for their information potential. If a preservation strategy does not envision the collection of some of that information at some time through appropriate investigation, there is no justification for preservation. The related preservation strategy of "banking" sites for the future envisions some kind of ultimate use, but puts it off into a future that may never come. In reality, site preservation programs, whether they are overseen by public agencies or private organizations need to develop policies and procedures that allow for consumptive use of portions of sites for well-justified and well-designed archaeological research (McManamon et al. 2016).

Lipe (1996: 27) has the last word on this topic:

> To the extent that preservation is justified by a site's information potential, . . . preservation efforts need to be coupled with a longer term focus on the generation of knowledge from archeological study of the population of sites that are preserved. Long-term, frugal consumption of the archeological record by well-justified research – both problem-oriented and mitigation-driven, must be an accepted and integrated part of the preservation program. If the research doesn't get done, or if it gets done and we don't learn anything from it, or if only scholars learn from it and the public is shut out, then preservation will have been in vain, because its goals will not have been achieved.

Conclusion

Our use of "leadership" in this chapter, means the opposite of the command, control, or stultifying dictatorial practices that people often take it to mean. A CRM leader's role is to do for the other participants in the field the things the others cannot do for themselves. Leaders constantly cultivate greater capability among others, willingly cede responsibility as capability

grows, and thoughtfully recede into a less-specific and more general role, but always ensuring quality and accountability and never quite ceasing to lead. The best leaders serve others, help them to know their vision and values, and then create circumstances in which people can succeed within that framework. This is much more complicated than command, but it is liberating and enabling rather than stultifying. Special effort is required when leaders are welcoming new groups who bring different perspectives to the field, but it can be done.

A generally unfilled potential remains for CRM to keep its vision not just alive but also growing, to capture lessons from its own experience and to feed them back into the ways the program functions. When this happens, work itself becomes an experience of constant learning and growth. Recognizing and capturing the lessons is a function of the profession, but feeding them back into the program is a function of the government agencies that set, enforce, and explain the standards. Given the existing functions and structure of organizations within CRM, probably only the National Park Service or the Advisory Council or both can make this happen.

In large measure, CRM has functioned over these four decades as a response to things done by others, as mitigation of adverse effect or remediation of some action that otherwise might destroy cultural resources. These actions have mostly taken place on government lands or have involved government dollars, licenses, or permits. If the future is only to be more of the same it will be difficult to keep the program alive and growing and to fight off morbidity. The National Historic Preservation Act, as amended, clearly extends the government obligation to provide leadership beyond federal, state, local, and tribal governments and to the private sector as well. Might cultivation of willing and capable stewardship of privately owned cultural resources be part of CRM's vision for the coming decades?

Note

1 Full disclosure, the first author is the Executive Director of the Center for Digital Antiquity.

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